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# USSR Report

AGRICULTURE

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30 July 1984

# USSR REPORT

## AGRICULTURE

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### UZBEK SSR PREPARATIONS FOR SPRING FIELD WORK

Moscow SEL'SKAYA ZHIZN' in Russian 31 Jan 84 p 1

Article by A. Uzilevskiy, Uzbek SSR: "Relying Upon Experience"

Text The past complicated year has prompted the agricultural workers of Uzbekistan into drawing definite conclusions and at the present time, during this winter period, they are making plans to obtain an earlier harvest during this year's season. Thus the goal consists of carrying out all of the spring field work during earlier periods!

In analyzing the indicators for many years, the specialists drew the following conclusion: the sowing of cotton early in the spring does not require waterings in order to obtain seedlings. Thus a tremendous savings is realized in the use of water, the plant growth is accelerated by 10-12 days and their required density is maintained. Certainly, the soil does not always ripen during the second half of March. In such situations, encapsulated seed should prove to be of assistance. The experience of past years has shown that a capsule covering protects the seed not only against the effects of low temperatures or root rot, but in addition it nourishes the seedlings during their early development. This year the plans call for encapsulated seed to be used for sowing cotton on hundreds of thousands of hectares.

One half of the fields are to be sown using denuded seed and precision sowing machines. This will make it possible to realize a considerable economy in the use of seed and it will reduce sharply the expenditures of labor and time required for thinning out the seedlings. Special importance is being attached at the present time to accelerating the preparation of the seed and the seed deliveries to the farms.

The specialization in each oblast of one cotton plant, in the preparation of seed, has for the most part proven its worth. However, these enterprises are not performing in an efficient manner in all areas. Low rates for the cleaning and chemical disinfection of cotton seed are the rule in the Kara-Kalpak ASSR and in Khorezm and Bukhara oblasts. Soyuzsel'khozkhimiya has failed to supply the Ministry of the Cotton Cleaning Industry of Uzbekistan with adequate quantities of the preparation Phentiuram. At the plants it has been replaced by less effective preparations. As a result, the farms have had to return to the chemical disinfection of seed prior to sowing and this has led to above normal expenditures of resources, manpower and time.

The republic's kolkhozes and sovkhoses are sowing new varieties of cotton on considerable areas -- varieties which are more productive than those grown up until this time. Recently the leaders of party and soviet organs and the chairmen of rayon and oblast councils of agroindustrial associations became acquainted with the results of controlled strain testings. Early ripening varieties and those possessing better fiber characteristics were recommended for cultivation on a more extensive scale.

Good seed requires well prepared arable land -- fertilized and leached of salts. Importance is also attached to ensuring that water supply irrigation is carried out in a timely manner and that the irrigation and land reclamation systems have been cleaned. Only one third of the planned areas had been leached prior to the beginning of the third decade in January. The rates are even lower in Fergana, Bukhara and Khorezm oblasts. The demineralization process should be completed as rapidly as possible, bearing in mind that many other pre-sowing operations must still be carried out on these lands. Only a month or a month and a half remain before the commencement of sowing work in Uzbekistan. The sowing of grasses will commence during the days of the February "windows" and this work will be followed by the sowing of corn and early vegetable crops.

The watering of the fields will be carried out at higher rates than those for last year. But the work will not be as good in all areas. Kashka-Darya and Bukhara oblasts are closing their summary of reserve waterings. Here they are lagging behind by threefold compared to the average indicator for the republic.

Early February is the most favorable period for cleaning the intra-farm irrigation-land reclamation network. Hundreds of excavators and thousands of people were engaged in carrying out this work. However, compared to this same period for last year, the amount of dirt removed was less by 13 million cubic meters. The farms in Kashka-Darya and Samarkand oblasts fell farthest behind.

According to an analysis by the forecasters, the coming year may turn out to be a dry one: less precipitation in the mountains and less water flowing into the artificial water tanks. By the middle of January the republic's reservoirs had accumulated 7.2 billion cubic meters of water, or 3 billion less than the planned amount. Even the large Charvak Reservoir, which is capable of containing 2 billion cubic meters of water in its bowl, has only 297 million cubic meters at the present time and this is lower than the "dead level." Each day this reservoir receives 51,000 cubic meters of water and at the same time 49,000 cubic meters are released into canals for satisfying the oblast's economic needs. The Chirchik River has almost ceased supplying the Charvak Sea with water. Its flow is being drawn off by cities, enterprises and the Tashkent Electric Power Station. Very few economies are being realized in the use of water. The situation is serious and requires urgent measures aimed at accumulating and conserving in the use of water throughout the entire Central Asian region as a whole.

An increase in the fertility of an irrigated hectare is associated with an application of fertilizer. With high mineral fertilizer norms, the republic's kolkhozes and sovkhoses annually increase their use of farmyard manure. The plans call for more than 24 million tons of organic material to be applied in behalf of this year's harvest. Only one half of this amount has been procured

and 10 million tons have been applied to the fields. At a time when the fertility detachments in Tashkent Oblast have over-fulfilled considerably their plan for procuring and applying farmyard manure, the kolkhozes and sovkhozes in Bukhara Oblast coped with their task for less than 30 percent and in Kashka-Darya Oblast -- by 15 percent.

The repair of sowing equipment is nearing completion throughout the republic. Typically, on those farms and in those rayons and oblasts where emphasis is placed upon early harvesting of the cotton and other crops, the preparation of the machines and mechanisms is proceeding at accelerated rates. In many rayons in Tashkent, Khorezm, Navoi and Surkhan-Darya oblasts, nine out of every ten tractors and all of the farm levelling units, plows, harrows and sowing machines have been moved up to the readiness line. The repair of cultivators is being completed. It is by no means an accident that the spring sowing will be carried out here during the most favorable periods and in just 5-6 days. On the other hand, the farm leaders and specialists in Kashka-Darya Oblast appear to be unable to abolish the practice of dragging out the spring field work. According to data available on 16 January, of 6,243 tractors at Kashka-Darya farms only 3,694 had been prepared for operations. More than 2,000 harrows, approximately 900 sowing machines and more than 1,000 cultivators are awaiting repair work. An inspection carried out on the quality of the repair work uncovered mistakes in the work performed at many workshops of Goskomsel'khoz-tekhnika and also at kolkhoz and sovkhoz workshops. In Namangan Oblast, 12 percent of the tractors inspected and 15 percent of the cotton sowing machines were returned to the workshops. Similar situations are being uncovered in other oblasts.

Nevertheless, these mistakes and unfinished items of work are not considered to be typical, but rather it is the overall mood that is clearly expressed in the operational style of those brigades and crop rotation tracts which have been converted over to the collective contract method. On the whole, the farmers in Surkhan-Darya and Tashkent oblasts and those agricultural workers in the republic who are following their example have entered the competition to raise labor productivity by 1-1.5 percent compared to the planned task and to lower output production costs by 0.5-1 percent. On the whole, this will furnish 1 million additional quintals of cotton, grain, fruit and vegetables and also animal husbandry products. And the chief source for growth will be converting over to one and a half and double-shift equipment utilization and raising the cropping power of the cotton and other crops as a result of all work being carried out during the best period and in a high quality manner.

During the 4th year of the five-year plan, Uzbekistan once again plans to harvest no less than 6 million tons of the "white gold" and to ensure a high return from each corn, rice, fruit and vegetable and feed hectare.

7026

CSO: 1824/483

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### SPRING SOWING OPERATIONS IN UZBEK SSR REVIEWED

Moscow SEL'SKAYA ZHIZN' in Russian 6 Apr 84 p 1

Article by A. Uzilevskiy, Uzbek SSR: "Uzbekistan Sowing Operations"

Text The rainy spring has confronted the farmers with many problems. Nevertheless, by the beginning of April many farms and rayons had already completed sowing their alfalfa and corn and are now engaged in sowing their cotton. Thus Komsomolabadskiy Rayon in Andizhan Oblast was the first in the Fergana Valley to sow its forage crops and work has now commenced out on the cotton plantations.

The brigade headed by Akbar Ismanov at the Akaltyn Sovkhoz required only 20 working hours in order to sow cotton on the entire area assigned to it. Having introduced the collective contract, the brigade not only reduced by one third the number of workers but in addition it undertook to raise the cropping power of the cotton to 35 quintals compared to only 30 obtained last year. All 185 of the rayon's cotton growing brigades converted over to the new system.

"We just held a RAPO rayon agroindustrial association council" stated the 1st secretary of the Komsomolabadskiy Rayon Party Committee Ibragim Dadakhanov, "The rayon's most experienced farmers established the sequence for sowing the cotton, taking into account the ripening of the soil. On the whole, the sowing will be completed during the 1st 10 days in April.

The cotton sowing machines have been moved out onto the fields in Kuvinskiy Rayon, Fergana Oblast. The sowing units have been staffed with machine operators for double-shift operations.

Pre-sowing watering is required in the southern zone; it is being carried out in furrows that have been established at 1 meter intervals. This is a laborious process. The farms in Surkhan-Darya Oblast are now having to invest more machines and personnel in carrying out this work. The watering work is nearing completion and out on the tracts, where moisture was provided earlier and the soil has already dried out, dozens of sowing units have moved out onto the plots. More than 5,000 hectares have been sown in Dzharkurganskiy, Leninyulskiy, Shurchinskiy, Angorskiy and other rayons during the past several days alone.

Specialists attached to the Shurchinskiy RAPO have taken note of the high quality work being carried out on the fields of the Kolkhoz imeni Kirov. Here



the sowing work was preceded by thorough levelling off of the check plots. The work was performed by the most experienced tractor operators. When a field is levelled off properly, all of the seed lies at the same depth and uniform and strong seedlings appear. Cultivation and watering produce fine results. For Surkhan-Darya Oblast as a whole, the levelling off of the fields prior to the beginning of April was carried out on 95 percent of the areas. More than one half of the cotton land was ridged for hill sowing. The experience of recent years has confirmed the fact that ridges ensure a more favorable regime for plant development and also for tending the crops.

In view of the limited amount of time available, maximum use must be made of each hour and yet not at the expense of simplifying the agricultural practices. It is gratifying to note that on the whole an improvement has taken place this year in the quality of the seed and that more 1st class seed was placed in storage. Thus, on farms in Khorezm Oblast -- 90 percent and in Kashka-Darya and Bukhara oblasts -- more than 70 percent. But it is difficult to find an explanation for the fact that Dzhizak Oblast has only several percent of 1st class seed and more than 38 percent 3d class seed. The quality standardized seed in terms of germinative capacity is unjustifiably low in Fergana Oblast -- 15 percent and in Tashkent Oblast -- 25 percent. In the Kara-Kalpak ASSR it is 18 percent. Urgent measures are required in order to correct this situation.

It is quite obvious that a reduction has taken place this year in the quality of the pre-sowing and sowing work being carried out on a number of farms in the Golodnaya, Dzhizak and Karshi steppe regions.

In April the farmers of Uzbekistan must carry out a tremendous volume of work: sow alfalfa and corn, plant vegetables and potatoes, carry out a large cycle of operations on the winter crops, in the orchards and vineyards and sow cotton and rice on hundreds of thousands of hectares. Practical measures are being undertaken throughout the republic aimed at obtaining early and high yields of cotton. In some rayons the areas for cultivating this leading crop are being expanded and the recommendation has been made to reduce the number of varieties being sown by one half compared to previous years. This will make it possible to increase the plantations of more productive and stable varieties and thus improve the quality of the fiber. The decision has been made to carry out the sowing work on one half of the cotton areas using denuded seed and in accordance with an accurate plan.

For work out on the cotton and corn fields, the republic's kolkhozes and sovkhoses have at their disposal 34,000 sowing units, 44,000 cultivators and more than 170,000 tractors of different types. All of the equipment has been assigned to 5,700 mechanized detachments. Approximately 200,000 tractor operators are included in the structure of the cultivation, sowing and transport teams. A tremendous force! If this force is organized and utilized in a skilful manner, the spring sowing work on the fields in Uzbekistan can be carried out in an efficient and high quality manner.

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CSO: 1824/482

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### OVERVIEW OF SPRING FIELD WORK IN ORENBURG OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 13 May 84 p 1

/Article by I. Gavrilenko, Orenburg Oblast: "Sowing of Wheat in Orenburg Oblast"/

/Text/ The scope of the field work being carried out in Orenburg Oblast is increasing with each passing day. At many kolkhozes and sovkhoses the sowing work has already been completed. The workers on the remaining farms, together with the detachments of Sel'khozkhimiya, are competing against the better ones and striving to complete all of their operations as rapidly as possible and in a high quality manner.

A disagreement arose out on a field where a proposal had been made to use BIG type harrows for carrying out the moisture retention work. The agronomist was in a hurry to move out onto the tract, but the machine operators did not agree with him based upon the weak readiness of the soil. Finally the agronomist agreed to delay the work until the sun had a chance to warm up the ground. In turn, the machine operators subsequently utilized their working time in an efficient manner. The tract was prepared within the prescribed amount of time and the sowing units move out onto the plots on schedule.

This episode regarding the start of sowing operations was related to me by a brigade leader at the Belyayevskiy Bol'shevik Kolkhoz I. Gelikh.

"Glance at the quality of the work -- we have mastered all aspects of it" he concluded, "We learned how to do so last year."

In order to understand more clearly exactly what the brigade leader had in mind, allow me to state that up until recently the Bol'shevik Kolkhoz could not boast about high yields. Moreover, it was considered to be a backward farm. Then suddenly it took over second place in the rayon, having obtained more than 20 quintals of grain per hectare. What made the difference? The administration, headed by the new chairman V. Vlasenko, with the aid of specialists developed a complex of measures aimed at raising the return from the fields and improving the organization of labor among the kolkhoz workers. At the Bol'shevik, they converted over to cos' accounting procedures, introduced the departmental system for production control and they began using the brigade contract method on an extensive scale. Sensing the fact that they were the masters of their

work, the grain growers began displaying greater concern for their land. This year they plan to further exploit their success at the Bol'shevik Kolkhoz.

It is believed that the farmers' plans are fully realistic: they are relying upon efficient computations and upon a progressive system of management.

A majority of the farms in Orenburg Oblast are relying upon the best developments that have appeared in the past and striving to avoid past mistakes. The problem is as follows: if state investments in agriculture are increasing, then they must be utilized with greater efficiency and grain production must be increased and its quality improved. The contribution made by the kolkhozes and sovkhoses in this region to the country's grain resources is well known. Nevertheless, last year they were unable to meet the requirements for supplying the state with the principal food crop -- wheat. Its quality also turned out to be low. Thus this year special importance is being attached to the oblast's wheat fields. After acquainting myself with the documentation of the contractual subunits, I directed attention to the fact that the collective agreements in almost all areas must call for an increase of 3-4 quintals in the cropping power for this crop. Is it correct to expect such an increase?

Familiarity with the status of affairs in the various areas serves to underscore the realistic nature of the plans. First of all, the seed material has been improved noticeably. Prior to the commencement of field operations in this same Belyayevskiy Rayon, only 7 percent of the seed was designated as being 2d class of the sowing standard. The remaining 93 percent met the conditions for 1st class. Changes for the better are being observed also in the case of reproductions. Second class seed is being sown at the Bol'shevik Kolkhoz, at the Sovkhoz imeni Lenin -- seed of the first reproduction and elite seed and throughout the entire rayon -- seed that is no lower than the 3d or 4th reproduction. Roughly the same situation prevails on farms in other zones.

This spring the wheat is being planted following the best predecessor arrangements: winter rye, corn, sunflowers for silage and in some areas millet crops and grasses. In the eastern virgin land region and also in the southern part of the oblast, sectors which have been lying fallow are being set aside for these crops. It also bears mentioning that of the overall area of wheat fields, which exceeds 2 million hectares, the plans call for an increase in the proportion of durum wheats. They occupy 430,000 hectares, which is almost 65,000 more hectares than last year.

One particular partner of the agricultural workers -- Sel'khozkhimiya -- is also striving to make its contribution to the overall task at hand. According to preliminary computations, starter fertilizers are being applied to the soil together with the seed on an area greater than last year. At the present time, work has already commenced with regard to applying a top dressing to the crops prior to ripening -- approximately 4,000 express-laboratories are being organized for all of the zones and certain requirements have been placed upon the detachments of agricultural aviation.

This present spring period has created many difficulties for the Orenburg farmers. The snow disappeared early and rapidly and thereafter a period of cold windy days coupled with nighttime frosts set in. A warm spell prevails at



the present time. The specialists consider soil retention work to be the principal task. Based upon this fact, recommendations have been made calling for the work schedules to be shortened to the maximum possible degree, for the sowing to be carried out in two shifts and for use of the brigade contract method and leading technology.

Thus stubble field sowing machines are proving to be very useful. During just one run they can carry out three operations: removal of weeds from fields, sowing and the application of fertilizers to the soil. Of the overall volume of 3.5 million hectares of early sowing work, the decision was made to use SZS-9 and SZS-2.1 sowing machines on 1.5 million hectares. Certainly, not everyone was able to increase the width of the inter-row spacings for these implements. Use had to be made of the experience of skilled experts: they began installing special blade-dissectors in the plowshares, which separate the arriving grain into three streams. This work has been checked in actual practice.

The experience of leading workers is also being employed extensively in the preparations for and the carrying out of many other types of work.

The scope of the field work being carried out in Orenburg Oblast is increasing with each passing day. There are farms which have already completed the sowing of early spring crops. This applies first of all to all of the kolkhozes and sovkhoses in Ilekский Rayon. The sowing units in other areas are also being employed in a more productive manner. A daily output of 150,000 hectares has already been achieved for the oblast as a whole and the new goal is now 200,000 hectares.

7026

CSO: 1824/478

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### SPRING FIELD WORK CONCERNS IN BASHKIR ASSR

Moscow IZVESTIYA in Russian 22 May 84 p 1

/Article by A. Zinov'yev, Bashkir ASSR: "Without Blaming the Weather"/

/Text/ This present spring period has turned out to be a complicated one in the Bashkir ASSR: having begun unusually early -- the snow disappeared in the steppe regions during the first days of April -- it thereafter, seemingly regretting its haste, returned once again in May accompanied by cold winter weather. Moreover, during the entire month of April and two 10-day periods in May no rainfall was experienced over a large portion of the republic. In some areas, only a very small amount of snow fell. All of this served to arouse considerable concern and additional problems for the problems and forced them to change their field work tactics and to alter their schedules.

We decided to set up the Izvestiy Field Camp on the fields of the Put' Lenina Kolkhoz in Aurgazinskiy Rayon, which is located in the middle of the Bashkir ASSR. This is the fifth year that the farm has been headed by N. Aksakova, a deputy to the autonomous republic's Supreme Soviet, who earlier worked here for many years as the chief agronomist. We met Nina Aleksandrovna at the edge of a field standing among the soil cultivation and sowing units. Crumbling a clump of dirt in her hands, she seemed to inspire in a persistent manner the brigade leader and machine operators.

"I am convinced comrades that there is no need for waiting; the time is at hand for releasing the units" she stated as part of her greeting, "The earth has warmed up sufficiently, notwithstanding the fact that there was some frost during the night. But the brigade leader entertains some doubts."

Brigade Leader M. Bogdanov offered his arguments, but eventually he agreed with the chairman and issued the command to the machine operators. The latter began moving their units, dropping the teeth of their cultivators by 7-8 centimeters. In following them, we noted that the clumps of dirt being turned over were too large. The chairman, together with the brigade leader, stopped the units and recommended that the depth be decreased by 1-2 centimeters. Following this, the loosening work appeared to proceed in a normal manner.

"In view of the shortage of moisture, all efforts are presently being directed towards retaining it" continued Nina Aleksandrovna, "We consider it advisable to limit this field to just one cultivation instead of two, following which barley will be sown immediately. Last year the field which lies across the road

from us was occupied by sugar beets. The crop was harvested late and no plowing was carried out. We believe that the work on this field should be limited to sweep tilling, cultivation and harrowing, after which barley can also be sown.

The situation which has developed here is rather typical. The specialists and the leaders of brigades and farms must accept a certain amount of risk upon deciding to commence a particular operation or even when they decide to wait a little while.

Having organized double-shift operations, the farmers are intensifying their sowing rates. Having completed their sowing of early grain crops in a number of rayons -- Ishimbayskiy, Meleuzovski and Dyurtyulinskiy -- they have commenced sowing operations on their plantations of beets, sunflowers, corn and potatoes.

This year a considerable quantity of farming products will be produced by teams and brigades which operate on a collective contract basis: they have been assigned 42 percent of the arable land. One fourth of the entire amount of grain, approximately one half of the vegetables, 60 percent of the potatoes, 70 percent of the sugar beets and one half of the forage crops will also be grown on the basis of collective contracts. They appear as the pioneers in the introduction of progressive technologies.

The quality of the seed for the spring grain crops is considerably higher this year than in past years: 78 percent of this seed meets the requirements for 1st and 2d class. In Ilishevskiy Rayon, which is well known for its high culture of farming, 91 percent of the seed sown is of 1st class quality. At the same time, there are some examples of an opposite nature. Each year the units in Zilairskiy, Blagoveshchenskiy, Belokatayskiy, Askinskiy and Burzyanskiy rayons move out onto the spring fields with low quality seed (and partially with sub-standard seed): the initial such units have only 5 percent 1st class seed. What kind of harvest can be expected from the use of such seed?

Compared to last year, the areas for strong and durum wheats have been expanded (by 10,000 hectares): this year they will be grown on 105,000 hectares. The plans call for their sowings to be increased to 165,000 hectares, but the republic's grain products administration has been unable to provide the required amount of seed. And a portion of the seed was released on the fields directly from the wheels.

This history must serve as still another lesson for our Bashkir farmers.

The deputy minister of agriculture for the Bashkir ASSR, A. Iorayev, comments upon the course of the spring field operations: "The sowing work has entered the final period and at the present time it is being carried out at a maximum tempo in the northeastern portion of the republic, where spring arrives later. There are 1,246 sowing complexes in operation out on the fields, the structure of which includes approximately 12,000 teams. This year 745,000 more tons of organic fertilizer were applied to the fields than the amount for last year. Each hectare of strong and durum wheats will be given 50 kilograms of mineral fertilizer in active agent.

A number of field operations are being combined on many farms in an attempt to conserve moisture: for example, pre-sowing cultivation, sowing and the packing of soil.

Despite the difficulties, the Bashkir farmers expect to carry out their high obligations with regard to selling grain and other field crop husbandry products to the state. These high goals can be achieved only by countering the caprices of the weather and through a high culture of farming and a high level of organization.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### PROGRAMMING OF GRAIN CROP YIELDS IN SVERDLOVSK OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 27 May 84 p 1

/Article by V. Stakheyev, Sverdlovsk Oblast: "A Harvest -- According To a Program"/

/Text/ The weather forecasters in the Ukraine are referring to this current month of May as a month of contrasts. Actually, no sooner had the machine operators succeeded in moving their sowing machines out onto the fields than a snowstorm struck, the likes of which had not been experienced here in over 100 years. In some areas the white cover was a half meter deep and it remained for several days. And these were days during which the farms in this region usually carry out their sowing operations at a maximum tempo.

The caprices of the weather hindered the situation to a considerable degree. Time was passing and the dampness in some areas was impeding operations out on the arable land. When one considers that the decision was made this year to increase immediately the grain and potato fields in the Central Urals region by 10 percent, then the complicated nature of the task becomes more obvious.

According to measurements employed in this region, the Glinskiy Sovkhoz in Rezhevskiy Rayon is by no means the strongest farm and yet it can quite properly be numbered among the best. The snowfall did not miss the sovkhov's fields and the thirty degrees of heat which prevailed following the violent snowstorm is drying out the damp arable land very rapidly. Thus several sowing units are standing by along the edges of the fields. And it would appear that such extra vigilance is justified. As early as dinnertime, steam could be seen floating up out of the ground and by evening the tractors were already pulling sowing units out onto the fields.

"The results from having prepared both the personnel and the equipment are readily apparent during such difficult spring periods" commented the director of the sovkhov, V.N. Chepchugov, during a discussion, "not to mention the seed and the soil. The farm is utilizing the system of programming of yields and this would be impossible in the absence of a high culture of farming. Agrometeorological laboratories and also a meteorological post are in operation at the sovkhov. All of the grain crops are being cultivated on a collective contract basis.

During the discussion, Vladimir Nikolayevich added one important detail: over a period of many years the sovkhov has been able to carry out its work during

the hot sowing and harvest days using only its own resources; it did not have to enlist aid from enterprises in the city. And the results of such management were apparent -- last year, an unusually difficult one for this region, 25.2 quintals of grain per hectare were obtained. This year the plans call for the cropping power to be raised to 30 quintals.

It was for a good reason that I paid a visit to the Glinskiy Sovkhoz. For it is at this average farm that one can see, during the current spring season, the farming level and the rural economy as a whole for the Central Urals region. Thus, whereas only several years ago one could count the number of kolkhozes and sovkhozes which were employing the programming of yields on one hand, today there are more than one dozen such farms. And the cropping power of 35-40 quintals, which is annually being obtained now for the second five-year plan by many kolkhozes and sovkhozes in Sysertskiy, Pyshminskiy, Talitskiy and other rayons throughout the oblast -- is the best advertisement for programming.

One other factor is also obvious. Today a high culture of farming assumes the use of modern forms for labor organization. Growth in the number of non-schedule brigades and teams is an effective indicator. Today there are 867 of them alone in field crop husbandry. They are already working 50 percent of the arable land, compared to only 32 percent 1 year ago. Nor is there any need to mention the quality of the work being performed by the machine operators of non-schedule teams.

For example, let us take the Manchazhskiy Sovkhoz in Artinskiy Rayon. In the autumn, all edges of fields here were plowed and carefully levelled off -- not one clump of earth to be wasted! The law of the land -- strict observance of the technology in use out on the fields. At the present time, during the period devoted to sowing, each trivial detail must be taken into account: when loading seed and fertilizer into the sowing units, the automatic loaders must be capable of being turned around in order to load any unit, with no more than 2-3 minutes required for carrying out such an operation.

The machine operators at the Bazhenovskiy Sovkhoz in Beloyarskiy Rayon commenced their work later than other farms owing to the high level of dampness out on the fields. The fields here differ greatly.

I held a discussion with a young tractor operator -- Mikhail Fatkhutdinov.

"Yes, I also had to remain alert so as not to miss the movement out onto the fields. Indeed, the soil is ripening in a very irregular manner" stated Mikhail, "But the other operators and myself are presently increasing the speed of our operations. Today we must sow 60 hectares -- we calculated and established this task ourselves."

It bears mentioning that yesterday the output of Mikhail Fatkhutdinov's machine was only 40 hectares. His Kirovets machine was pulling a group of attached implements. A duck-foot cultivator, harrows and behind the sowing machine -- a device for packing the soil. All of the operations are being carried out simultaneously. There are no excessive runs and this means less packing down of the damp soil by the equipment. Yes and a noticeable savings in fuel consumption is being realized.

"Our goal is to reach 60 hectares" stated Vladimir Novozhilov, who is competing against Mikhail. He glanced confidently at his dust-covered sowing machine operators.

Side by side the units moved out onto the field.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### INSPECTION BRIGADE REPORTS ON IRRIGATION WORK IN KHOREZM OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 20 May 84 p 1

/Article by SEL'SKAYA ZHIZN' inspection brigade consisting of V. Makhmudov, brigade leader at the Kolkhoz imeni 40-Letiya Oktyabrya in Khankinskiy Rayon and Hero of Socialist Labor; R. Khaitbayev, chairman of the Shavatskiy Rayon People's Control Committee; P. Shcherbakov, special correspondent of SEL'SKAYA ZHIZN', Khorezm Oblast: "The Harvest Is Accumulating"/

/Excerpts/ The late spring has delayed the soil ripening periods. And although the farmers and land reclamation specialists have accomplished a great deal aimed at preparing for the sowing work -- they succeeded in leaching the saline lands and they levelled off the areas -- nevertheless the seed was placed in the furrows 2 weeks later than usual.

The caprices of the weather have raised the business-like mood of the people and their responsibility for the fate of the crop. Today they are counting not upon days but upon hours.

"The sowing rates were higher and the exactingness with regard to quality has increased considerably" stated the secretary of the Khorezm Oblast Party Committee G. Masharipov, using specific facts to confirm this statement.

Before departing for various farms throughout the oblast, the inspection brigade acquainted itself with the operational data of the statistical administration. Yes, this year the desalinization waterings were carried out on the whole in a more organized manner, the coefficient of water usage was higher commencing with the very first days and the irrigation installations, pumping stations and drainage and irrigation networks were prepared in advance in all areas.

It bears mentioning that the inter-farm land reclamation detachments created by the RAPO /rayon agroindustrial association/ councils are furnishing considerable assistance to the kolkhozes and sovkhoses in the various areas. These "flying" subunits are always prepared at a moment's notice to correct discrepancies in the irrigation systems or to carry out repairs in a hydraulic engineering installation, a water line or in a power-pumping unit. But these detachments do not only serve for the purpose of providing "emergency aid." They also make a considerable contribution towards the modernization of certain systems.



This season there are 5,500 irrigation specialists working throughout the oblast. An especially attentive attitude is being displayed towards these personnel. This is quite understandable. According to a local proverb: "If there is no water, there is no land."

Last year, 42.2 quintals of cotton, 72 quintals of corn grain and considerable quantities of alfalfa hay and other products were obtained from each of 170,000 irrigated hectares here. This year's obligations are more impressive. The decision has been made to sell to the state 425,000 tons of raw cotton, 106,000 tons of rice, thousands of tons of fruit and grapes and to ensure that the livestock are adequately supplied with high quality feed.

With the introduction of the brigade contract method, it was obviously only natural for the chairman of the Gurlenskiy RAPO Z. Dusniyazov to open a discussion with us. Thirty eight crop rotation tracts, assigned to permanent cost accounting collectives, have been created on all of the farms.

An interesting experience was made known to us in Shavatskiy Rayon. The local farmers, in collaboration with Tashkent scientists, are successfully employing biological methods for combating cotton pests. In particular, the Moskva Kolkhoz completely rejected the chemical disinfection of cotton seed using toxic chemicals and converted over to the use of a chlorella suspension for treating the seed. The plants are not suffering from root rot and the agronomists moreover are claiming that improvements have taken place in the moisture retention properties of the soil.

This year it would seem that there is no special cause for alarm with regard to ensuring that the plants are supplied with moisture and yet a majority of the farms in Shavatskiy Rayon have adopted a more zealous attitude towards providing moisture for the plants than they have in the past. This is correct. Who knows what will happen after a month or a month and a half!

This year the RAPO councils in all of the rayons of Khorezm Oblast are devoting special attention to the element of quality. This includes both large and small farms. At the Moskva Kolkhoz in Shavatskiy Rayon, on one of the fields of the second brigade, they were late in gathering together for the purpose of applying mineral fertilizer. Using figures, the specialists who carried out the inspection proved the extent of the losses that can be sustained as a result of such blunders and how they can affect earnings. And before an hour had passed, measures were being undertaken aimed at applying the fertilizer.

The brigade leader firmly shook the hand of the RAPO deputy chairman N. Mukhamedzhanov for the assistance furnished: "You have convinced us not to allow such blunders to occur in the future. These fertilizers are twice as expensive to use on our local loam soils."

The sowing work has been completed on the cotton fields of the ancient Khorezm Oblast. In those areas where the seedlings have already appeared, the machine operators have already commenced the cultivation work and are preparing the furrows for the initial foliar watering. At the present time, the irrigation personnel are concentrating all of their attention on irrigating the alfalfa.

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### REVIEW OF 1983 COTTON CROP IN TADZHIKISTAN

#### Dealing With Crop Problems

Dushanbe SEL'SKOYE KHOZYAYSTVO TADZHIKISTANA in Russian No 1, Jan 84 p 3

[Lead article: "The Example of Leaders is Calling"]

[Text] The climatic conditions of 1983 turned out to be extremely unfavorable for the cotton farmers of the republic. In the spring because of the frequent and intensive rainfall, frequently accompanied by hail, weather indicators were worse than the long-term average and than those for 1982 in most cotton-raising zones.

The greatest losses occurred in the enterprises of Kulyab Oblast and of the regions of republic subordination. For this reason on large areas it was necessary to resow cotton 2-3 times, which meant that the schedule for sowing and resowing was greatly expanded in many regions, continuing into June. At the same time an exception was the enterprises of Leninabad Oblast, where spring favored the completion of sowing in a compressed period of time.

Low temperatures and a high moisture content in the soil encouraged the outbreak of root rot, macrosporiosis, the turnip moth and the aphid in a number of cotton-sowing zones in the republic. This was the reason for the prolongation of the schedule to complete the thinning of crops which, in turn, resulted in the extensive development of the first fruit branch on plants and in the late development of generative organs.

As a result as of early July cotton lagged in growth and development by 8-10 days from the time of the initial sowing in the enterprises of Leninabad and Kurgan-Tyube oblasts and by 12-15 days in Kulyab Oblast and the regions of republic subordination.

In the course of July the cotton sowing zones of the republic experienced unstable weather conditions with sharp fluctuations in temperature, which also had a negative effect on the development of bolls. The temperature regimen was especially unfavorable during the second half of July and the first 10 days of August; on many days the maximal temperature reached 47 degrees.

As we could have expected, the low temperatures at the beginning of the vegetation period and the sorting out during the period of active growth and development of cotton had a negative effect on the development of pollen and fertilization, which encouraged the formation of sparsely seeded lacinules and a decrease in the weight of bolls.

But all of this did not discourage the republic's cotton farmers. They have had to eliminate serious difficulties more than once. Many rayons and kolkhozes and sovkhozes set their mastery and skill against the caprices of nature; thanks to the purposeful care of crops they cultivated a good harvest. Thus, the cotton farmers of Leninabad and Kulyab oblasts and all regions of republic subordination successfully fulfilled plans for the procurement of cotton. They delivered a great quantity of above-plan raw materials. Also able to meet their quotas were the enterprises of Yavanskiy, Pyandzhskiy, Il'ichevskiy, Dzhilikul'skiy and Kuybyshevskiy rayons of Kurgan-Tyube Oblast.

The cotton farmers of Leninskiy Rayon made a great contribution to the republic's cotton bales. They were first in the Gissarskaya Valley to fulfill the state plan for cotton procurement and delivered hundreds of tons of "white gold" in excess of their quota.

The material published below discusses the cotton farmers of Leninskiy Rayon.

#### Learning From Past Mistakes

Dushanbe SEL'SKOYE KHOZYAYSTVO TADZHIKISTANA in Russian No 3, Mar 84 pp 18-20

[Article by A. Babayev, Minister of Agriculture of the Tajik SSR: "Working With a Full Contribution of Effort"]

[Text] The most important thing is not to forget our debt to the state with regard to cotton and other types of products. All essential measures must be taken not only to fulfill all plan tasks for the current year but also to cover debts with interest and to create a reserve for the future.

In order to successfully deal with the established goal we must thoroughly analyze the situation that has developed in recent years in cotton farming, a leading branch of agriculture, the effectiveness of which will greatly affect the economic potential of the republic, the growth in income in kolkhozes and sovkhozes and the material well-being of village workers.

Last year a great deal of incomplete work and violations of agrotechnology were tolerated within this branch, for which the republic was subject to serious criticism on the pages of PRAVDA in the article, "Late Cotton." All of us must draw the proper conclusions from this criticism and correct the situation.

Of 29 cotton-sowing regions, 10 did not fulfill the plan for the procurement of raw materials and 72 enterprises did not fulfill the plan. On the average in the republic 28.7 quintals of cotton raw materials were obtained per hectare; for fine-fiber varieties yield equalled 25.5 quintals per hectare, which is significantly less than in past years.

At the same time, many enterprises and rayons and Kulyab and Leninabad oblasts fulfilled the plans for the sale of cotton to the state. Large yields were produced last year in Voseyskiy, Kulyabskiy, Moskovskiy, Leninskiy, Pyandzhskiy, Kuybyshevskiy, Proletarskiy and Khodzentskiy rayons.

Some directors of enterprises explain the non-fulfillment of plans by the bad weather. But this reasoning is inconsistent. After all, we know that during other bad-weather years the cotton farmers in our republic came out victorious more than once. Why didn't this occur last season?

The root of the problem is fulfilling the agricultural complex of operations without imagination and without a consideration of the conditions that have developed on each individual field.

This is why, in order not to repeat the mistakes of the past, it is essential to establish strict controls over the unconditional fulfillment of the entire agricultural complex in the best possible time and on a high qualitative level.

What were the main problems of the past season?

In many enterprises of Kurgan-Tyube Oblast as well as in Parkharskiy Rayon farmers used unjustifiably large amounts of nitrogen fertilizers and heavy irrigation, which resulted in the excessive growth of cotton to the detriment of building up a harvest.

At the present time almost all cotton-sowing republics have introduced cotton-alfalfa crop rotations, but they have been assimilated on only 45.8 percent of the planned area. The task consists of taking decisive measures to assimilate crop rotations as quickly as possible during the remaining 2 years of the five-year plan.

Last year an unusual situation developed with regard to the distribution of cotton varieties in industrial plantings. Thus, in Kabodiyenskiy and Shaartuzskiy rayons eight different varieties were sown, in Bakhshskiy--6, in Gissarskiy--9 and in Yavanskiy--7, although each rayon should have sown no more than two varieties.

An important factor in increasing the productivity of cotton is the adherence to a scientifically-based irrigation regimen. In Kurgan-Tyube Oblast this factor was disregarded last year and as a result there were instances here of late maturation and late opening up of the bolls.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### TENDING OF COTTON CROP IN UZBEK SSR

Tashkent PRAVDA VOSTOKA in Russian 12 May 84 p 1

/Article: "Thorough Tending of the Seedlings"/

/Text/ The agricultural workers, having acquainted themselves with the materials on the meeting between the General Secretary of the CPSU Central Committee and chairman of the Presidium of the USSR Supreme Soviet Comrade K.U. Chernenko and workers attached to the Moscow plant Serp I Molot, are focusing attention on the fact that although this discussion took place with metallurgists, nevertheless in terms of its breadth, the scope of its vital phenomena and its very content, it cannot leave anyone of us feeling indifferent. In essence, this discussion concerned the contribution being made by each Soviet individual to our overall task and towards implementing the planned tasks of a work collective and the role he plays in carrying out the decisions handed down during the 26th CPSU Congress and the country's Food Program.

A heated campaign in behalf of the new harvest of "white gold" is unfolding at the present time out on the cotton fields. Aware that an intensification in the production of cotton is one of our patriotic and international obligations, the masters of the fields are fully resolved to produce 5,980,000 tons of this valuable raw material, including 450,000 tons of fine-fibred cotton.

Having joined in the socialist competition to celebrate properly the 60th anniversary of the republic and the Communist Party of Uzbekistan, thousands of farmers proved themselves to be models of creative initiative and genuine labor heroism during the autumn and winter period. As a result, many farms succeeded in preparing their equipment and fields in a better manner than they have in past years. At a majority of the kolkhozes and sovkhoses, the sowing work was carried out using leading agricultural methods and in a rapid manner. The majority of the kolkhozes and sovkhoses in Tashkent Oblast completed their sowing work in just 50-60 working hours. The farms in Surkhan-Darya, Andizhan, Dzhizak and some other oblasts planted their seed in the soil somewhat earlier than in past years. This success was promoted to a large degree by the use of brigade contracts.

At the present time, the masters of the cotton fields are striving to obtain full-value seedlings. And this is quite correct. For it is at the present time, during this early stage in plant development, that the planned density for the plant stand should be created on each check plot.

The cotton growers in Surkhan-Darya Oblast have achieved success in carrying out this work. They carried out special waterings in the interest of accelerating the appearance of the seedlings. Many people were attracted to participating in this work. The watering was carried out day and night, with each liter of water being utilized in a thrifty manner.

Selective waterings were employed on a number of farms in Andizhan, Dzhizak and other oblasts. Undersowings were carried out on some check plots.

At the present time, an inspection of the seedlings is being completed on a majority of the farms in Surkhan-Darya, Andizhan, Tashkent and other oblasts and a second cultivation is being started. The high field work rates are being combined with strict observance of the rules for the leading agricultural practices and with outstanding quality in the tending of the crops. It has been proved here in actual practice that the Ipatovo method can be employed successfully for cultivating the plantings.

However, following the sowing operations a decline was noted in the tense nature of the work being carried out on the fields in some areas. Many kolkhozes and sovkhoses are not adhering to the schedules for inter-row cultivations and they are not always observing the requirements established for the agricultural practices. Moreover, some kolkhozes and sovkhoses are tolerating shortcomings in the cultivation work and the levelling off of the plantings is being carried out extremely slowly in a number of areas. Owing to dry winds, some farms in the Fergana Valley and in Bukhara, Kashka-Darya and other oblasts were forced to resow a portion of their plantings. The resowing was carried out rapidly. And later, for some obscure reasons, the field work rates decreased sharply at a number of farms. As a result, many brigades have still not commenced thinning out their seedlings. The farm leaders and specialists and the party organs, instead of mobilizing their collectives to perform their work in a selfless manner, are acting in an indecisive and sluggish manner and appear to be indifferent with regard to the great differences in the crops.

On some farms, the cultivation work is being carried out slowly and not always in a high quality manner; at times the seedlings are being covered over with dirt. There have been instances of the cultivators not being equipped with a complete set of working organs.

The republic's farms have a large pool of machines at their disposal. Sufficient equipment is available for this important work to be completed in a rapid manner. It is necessary only to include all of the equipment in the work, to arrange the working organs correctly on the cultivators and to carry out the cultivation simultaneously with applying the mineral fertilizers.

Following rainfall, the pests propagate in an active manner. This season the propagation of chewing cutworms coincides with the period during which the cotton is just beginning to gather strength. One must be very vigilant at this time. Particularly in view of the fact that the mulberry leaves are being procured out on the fields at the present time and toxic chemicals cannot be employed against the pests. However, inspections of the plantings and the locating of the centers of infection have not been organized in all areas. On many farms the ground equipment and biological means for combating the pests have still not been prepared.



In any type of endeavor, decisive importance is attached to the organization of labor. It is not enough to simply develop measures, but rather they must be implemented and the broad masses must be imbued with a sense of responsibility for their assigned tasks. On this year's cotton fields, with a high value being placed upon each hour of time, the skilful organization of labor is doubly important. It is the responsibility of the party organizations to exercise constant control over the course of the cotton cultivation work, to assign the communists to the more important sectors and to launch a competition for the rapid completion of the agrotechnical cycles.

The kolkhoz and sovkhos leaders and the RAPO specialists must exercise control to ensure the accurate observation of the schedules for cultivating the crops and the quality of fulfillment of these schedules and they must bear responsibility for ensuring logistical support for the brigades and teams and domestic and cultural services for the personnel in the field.

The cotton seed produced good seedlings. A large amount of complicated work lies ahead. And all effort must be mobilized in response to the appeal made by leading workers to workers attached to the agroindustrial complex of Uzbekistan: "A record harvest for the glorious jubilee! The fate of the plans and socialist obligations for this decisive year of the five-year plan will be dependent upon the work which we perform at the present time."

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### UZBEK SSR REQUIREMENTS FOR IMPROVING COTTON CROP

Tashkent PRAVDA VOSTOKA in Russian 26 May 84 p 2

/Article: "Timely and High Quality Field Operations"/

/Text/ The spring sowing campaign is in its final stage. The farmers are devoting all of their efforts towards ensuring that it is carried out during the best agrotechnical periods and that a reliable foundation is established for obtaining high yields.

As of 21 May, according to data supplied by the Central Statistical Administration for the Uzbek SSR, spring crops had been sown on an area in excess of 2,600,000 hectares at kolkhozes and sovkhoses throughout the republic, or 93 percent of the plan. The farms in Namangan, Surkhan-Darya, Syr-Darya and Andizhan oblasts have completed their sowing work, while those in Tashkent and Dzhizak oblasts have fulfilled their sowing plan by 97-98 percent.

The sowing work has been completed on the cotton fields and the sowing of corn for grain, vegetable, melon and forage crops has been completed on the principal areas.

Nevertheless, a considerable portion of the land has still not been sown on many farms. In Bukhara Oblast, approximately 6,000 hectares must be sown in order to fulfill the plan, in Kashka-Darya Oblast -- 14,000, Navoi Oblast -- 10,000, Samarkand Oblast -- 8,000 and Fergana Oblast -- more than 10,000 hectares. The sowing of rice is being delayed in the Kara-Kalpak ASSR and in Andizhan and Namangan oblasts.

All lands must be inspected immediately, the fields which have not yet been sown must be singled out and measures must be implemented aimed at rapidly including them in economic use. Each hectare of irrigated land must be accounted for in a very strict manner, sown on a timely basis and furnish the planned output. Special importance is attached to obtaining full-value from each hectare and ensuring that the edges and corners of the check plots are sown. Use must be made of all of the opportunities available on the farms for expanding the sowings.

Cotton seedlings with the assigned plant stand density have been obtained on a majority of the fields. From two to five small leaves have formed on the plants



of early sowings. At the same time, the cotton plants are lagging behind in their development on a considerable area and on many fields where resowings were carried out following natural calamities, the seedlings have still not appeared.

Under the prevailing conditions, special importance is being attached to the timely and high quality carrying out of agrotechnical measures associated with tending the crops.

In view of this fact, the tilling of the inter-row spaces is being carried out on an intensive basis in many oblasts and a complex of additional measures is being implemented aimed at accelerating the development of the cotton plants. The thinning out of the plants is nearing completion in Surkhan-Darya and Andizhan oblasts and on farms in these oblasts and also in Namangan and Tashkent oblasts 1.5-2 cultivations have already been carried out, the hoeing work is nearing completion and the work of applying a top dressing to the cotton is being carried out at a high tempo.

However, many kolkhozes and sovkhoses are failing to take into account the conditions of this current year and they are performing in a sluggish and disorganized manner in carrying out their work on the cotton plantations. Full-value seedlings have been obtained in all areas in Bukhara, Navoi and Syr-Darya oblasts and yet the thinning out and clumping of the plants here have been dragged out in an unjustifiable manner. This work has been carried out on only one half of the areas. The delay in carrying out the thinning work is slowing down the development of the plants, lowering the cropping power of the cotton and bringing about a deterioration in the quality of the raw cotton. The rapid completion of the thinning out of the plants and the formation on this basis of an optimum plant density -- this constitutes an urgent task confronting the leaders and specialists of kolkhozes, sovkhoses, rayon agro-industrial associations and all agricultural workers.

Weeds cause great damage to the cotton plants; they suppress the plants and absorb a large portion of the nutrients and moisture in the soil. This year's conditions have encouraged the spread of weeds over a considerable portion of the sowings. Despite this fact however, the hoeing of the cotton plants is being carried out at low rates in a number of oblasts. In particular, this work has fallen behind in Bukhara, Dzhizak, Navoi, Namangan and Fergana oblasts. In addition to intensifying this work, a requirement also exists for activating the work of gathering up and removing from the fields the rootstock of perennial weeds.

The chief agrotechnical measure for the tending of cotton is that of loosening the inter-row spaces -- cultivation. The maintenance of the soil in a loose state improves the temperature, air and water regimes for the plants and promotes their development.

Attaching great importance to cultivation, many farms and rayons carry out inter-row tilling work on an intense basis, combining it with mineral fertilizer top dressings for the plants and in this manner they improve greatly the condition of their fields.

At the same time, inter-row tillings are being carried out at slow rates in many areas, especially on farms in Bukhara, Dzhizak, Syr-Darya and Fergana oblasts. Large number of cultivators have still not been included in operations on the farms in these oblasts. Effective solutions must be found for the problems concerned with including the available cultivators in operations, equipping them with the required set of working organs and devices and achieving high quality preparation of the soil in the inter-row spaces.

Cotton seedlings have still not been obtained over a considerable area, especially in the Kara-Kalpak ASSR and in Navoi, Samarkand and Khorezm oblasts. These fields must be thoroughly inspected, the reasons for the delay in the appearance of the seedlings ascertained and a complex of measures must be carried out aimed at accelerating their appearance. Special attention must also be given to ensuring that the soil is supplied with the required degree of moisture and that the requirements for waterings are met.

The party committees must raise the level of organizational and political work, strengthen organization and discipline among the field workers, mobilize the efforts of the communists and all farmers towards rapidly completing the sowing work and carrying out an entire complex of agrotechnical measures associated with tending the cotton in a timely and high quality manner and they must also create the conditions required for productive labor, good daily routine and proper rest for the field workers.

The farm leaders and specialists and the workers attached to RAPO /rayon agroindustrial association/ bear a great amount of responsibility for the correct organization of production and labor and also for the issuing of material incentives. The introduction of a progressive industrial technology for cultivating the crop must be ensured for all areas and use must be made of all of the agricultural methods available for tending the cotton in a rapid and high quality manner. An improvement must take place in the efficiency of use of the machine-tractor pool and other logistical resources, manpower must not be drawn from the side for work out on the fields and a persistent campaign must be waged to obtain an early and good harvest with minimal expenditures of labor and resources.

A differentiated approach should be employed with the agricultural methods for tending the cotton, taking into account the peculiarities of each individual field.

The farmers must display an equal amount of concern for the sowings of the other agricultural crops. The solutions for the tasks concerned with intensifying the gross yields of food products require improvements in the tending of the grain crops, especially corn for grain, the plantings and sowings of vegetable and melon crops and potatoes, orchards and vineyards. At the present time, maximum attention must be concentrated here on carrying out inter-row tillings, applying a top dressing, watering the plants and organizing a campaign against agricultural pests and diseases.

The work being carried out in silkworm breeding is becoming more tense with each passing day. The harvesting and procurement of cocoons has commenced in Surkhan-Darya Oblast. The principal bulk of the caterpillars of the mulberry

silkworm moth is in the curling stage and the fifth age and in the mountainous and northern regions -- in the fourth age. In a number of rayons a feed shortage is apparent, the temperature regime is not being maintained in the silkworm houses and the norms for maintaining the facilities are not being observed.

The efforts of the silkworm breeding specialists and farm leaders must at the present time be directed towards ensuring thrifty consumption of the mulberry tree leaves, achieving strict observance of all of the requirements of the agricultural practices employed in the raising of silkworm moths, preventing incidents of gathering up unripe cocoons and improving their quality.

At the present time, there are no matters of primary or secondary concern. They must all be carried out in an exemplary manner and on a timely basis. The cropping power of the fields is dependent mainly upon the efforts of each farmer and leader and upon the quality of their work.

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CSO: 1824/483

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### METHODS FOR COMBATING SNOW CONDITIONS IN CITIES DISCUSSED

Moscow TRUD in Russian 18 Nov 83 p 1

/Article: "When Winter Arrives in a City"/

/Text/ According to the calendar it is still autumn, but according to the weather in the central region winter has already arrived. And it is placing the services responsible for maintaining a city's vital activities under a severe test. In Moscow, for example, snow has fallen for 3 days and it is clearly apparent that in some regions, along the main arteries and in the squares, there is a shortage of snow removal equipment. As a result, movement has come to a halt on a number of autobus and trolley-bus routes and special purpose vehicles are unable to reach their destinations. As a result of sluggishness on the part of the snow removal services, many people were late reporting for work and even after the snow had ceased falling. There were disruptions in the movements of transport vehicles in Gorkiy and vehicles and pedestrians became bogged down in the snow in other cities.

For the sake of objectiveness, mention should be made of the fact that many cities were prepared for this onslaught by the elements. In Tula, for example, a headquarters was organized for cleaning up the city and the workers of industrial enterprises became involved in restoring order to the territory, with no harm being caused to production operations. The snow was quickly removed from the main arteries in Belgorod.

In short, the weather conditions turned out to be not so severe in those areas where good preparations had been made for the winter and where due attention was paid to the reports issued by the weather forecasters. But the first snowfall revealed another aspect as well: many problems were encountered by the services responsible for cleaning up the cities.

As is well known, yard-keeping is a dying profession. And today the cleaning up of cities directly involves the use of equipment. Unfortunately there is a shortage of snow removal machines, snow loaders and sand spreaders. A sidewalk cleaning machine created based upon use of the small Vladimirets tractor has proven its worth. Equipped with suitable attachments, it performs efficiently during both summer and winter. But this year Minstroydormash /Ministry of Construction, Road and Municipal Machine Building/ recommended the use of only 100 such machines by the country's municipal economy.

There is still one other problem: the municipal clean-up services receive roughly one half of the machines and mechanisms being produced. The remaining units are being distributed among the ministries and departments for industrial enterprises, which also have been assigned adjoining territories. It would seem that the workers attached to the municipal economy are providing some assistance and yet what happens in actual practice: the plants and factories are not making maximum use of their specialized clean-up equipment and quite often they are not even using this equipment as intended. Thus one often sees two different situations out on the streets -- a sector that has been cleaned very well by a municipal service and a neighboring "departmental" sector that is covered with snow. Thus would it not be more efficient to have the cities cleaned up on a centralized basis, with all of the available resources concentrated in the one organization?

In addition to the machines, there are also the so-called chemical means for providing protection against the ice and snow. In particular, use is being made of mixtures of sand and salt. And oh that salt! How many complaints and criticisms are raised concerning it! It ruins footwear and the tires of motor vehicles and green plantings also suffer from its use. Thus, more than 10 years ago a harmless and highly effective anti-icing reagent was created. It is being produced by Minkhimprom /Ministry of the Chemical Industry/, but in quantities which satisfy by less than one half percent the requirements of the Russian Federation alone. In place of the missing portion the chemists offer only promises, excuses and delays.

It is obvious that the problems concerned with cleaning up the cities require the attention of many departments, including the professional trade unions. The use of a state approach for the production of equipment, instruments and chemicals, a responsible attitude with regard to their use and assistance furnished by the population and the collectives of enterprises -- these then are the trends upon which the professional trade unions must concentrate their attention.

The weather forecasters have warned of the approach of a new cyclone. All necessary measures must be undertaken to ensure that the next snowfall will not interfere with our normal life and work.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### BRIEFS

HIGH QUALITY SEED--Arkhangelsk, 15 May--The farmers in the southern portion of Kargopolskiy Rayon were some of the first in the oblast to launch their sowing campaign. For the sowing work, they prepared high quality seed for regionalized crops, with almost 90 percent of this seed meeting the requirements for 1st and 2d class of the sowing standard. /by A. Shirayev/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 16 May 84 p 1/ 7026

UNDERSOWING OF CLOVER--Vladimir, 14 Apr--An undersowing of clover is being carried out on the winter crop fields on farms throughout the oblast. This work has been completed at the Kolkhoz imeni Lenin in Suzdalskiy Rayon and at the Plodovyy Sovkhoz in Muromskiy Rayon. In all, the early spring undersowing of clover will be carried out on 40,000 hectares throughout the oblast. /by V. Il'ichev/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 15 Apr 84 p 1/ 7026

EARLY SPRING CROP SOWINGS--Yaroslavl--The oblast's farmers have commenced their sowing of early spring crops. The farms have laid away adequate quantities of high quality seed and the equipment has been concentrated in large complexes. One half of the sowing areas has been turned over for tending by farmers who are operating on the basis of a collective contract. /Text/ /Moscow TRUD in Russian 24 Apr 84 p 1/ 7026

NOVEMBER THUNDERSTORM--On the evening of 2 November a thunderstorm took place over Moscow. There were flashes of lightning in the sky and peals of thunder the likes of which are usually heard in July. The summer cumulus rain clouds released a driving rainfall on the earth, after which white waves of snowflakes the size of peas swept across the city. Within a matter of minutes the streets and squares were covered with a layer of melting snow. A thunderstorm at this time is a rather rare phenomenon. A popular folk saying holds that "if thunder is heard in the autumn, winter is not far behind." This thunderstorm spectacle which occurred in November was associated with an unusual atmospheric circulation: strong currents of warm wind from the Atlantic encountered an avalanche of cold air. Sharp drops in temperature in dissimilar masses aroused the sixth invisible ocean -- strained the electromagnetic fields of the heavens and, as a result, powerful thunderstorm discharges were released. /by D. Smirnov/ /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 4 Nov 83 p 6/ 7026

AN EARLY STORM WARNING--In the deepening twilight, many residents of Moscow failed to notice a thunderstorm gathering above the central regions. There were flashes of lightning. Large drops of rain mixed with hail were striking



the roadways. The gusts of wind reached a velocity of 23 meters per second. Three hours prior to the storm bursting forth, the weather service issued a storm warning to the organizations and enterprises. A leading engineer attached to the Department for Short Term Weather Forecasts of the USSR Gidromettsentr /Hydrometeorological Center/, T. Mnatsikan'yan, reported that the temperature in Moscow was higher than normal the past few days. The sun peeped out from behind the clouds quite often. But cold air broke through from the northwest dislodging the warm air in the upper layers of the atmosphere. Cumulus rain clouds formed. The thunderstorm struck first over Sheremetyevskiy Rayon at 3:40 P.M. Thereafter, reports on the thunderstorm were received from meteorological stations in the Lenin Hills, Tushino, Krylatskiy, Izmaylovskiy Park and Teplyy Stan. The last entry in the log of observations was made at 22:25 hours. The last month of autumn was truly a surprise! The thunderstorm which burst forth on the evening of 2 November also caught the weather forecasters by surprise. But notwithstanding the caprices of the weather, November continues to be a pre-winter month. A popular folk saying holds that "When the sky cries in November, the rain is soon followed by winter." /by O. Frolov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian  
4 Nov 84 p 4/ 7026

UNPRECEDENTED SNOWFALL--Murmansk--A hurrican wind accompanied by a strong snowfall halted the movement of autobuses yesterday on roads connecting Murmansk with other cities and worker settlements on the Kola Peninsula. Work came to a halt for a period of time in the ports, at construction projects and at open pit mines. In particular, the elements raged furiously along the shore of the Barents Sea, where the velocity of the wind exceeded 40 meters per second. The previous evening the weather forecasters issued a warning to the population concerning the cyclone approaching from the northwest. The crews of ships standing in the trade and fishing ports were summoned on the basis of an alarm signal being sounded. All of the equipment available in the city was employed for cleaning up the streets. Other measures were also adopted, as a result of which a majority of the enterprises in the city and oblast were able to continue operations even during the height of the hurricane. /Text/ /Moscow TRUD in Russian 20 Mar 84 p 4/ 7026

HIGH QUALITY SEED--Bryansk--The Bryansk farmers have raised all of the grain crop seed for their spring fields to a high sowing condition. Of more than a million quintals of such seed, 70 percent conform to the standard for 1st class and the remainder -- for 2d class. This is the first time that such success has been realized in the oblast. /Text/ /Moscow TRUD in Russian  
18 Feb 84 p 1/ 7026

AIRBORNE TOP DRESSING--Bryansk--The farms in Bryansk Oblast have commenced applying a top dressing to their winter crops and perennial grasses. The farmers are receiving assistance from the aviators. The latter have vowed to carry out this work on 360,000 hectares. /Text/ /Moscow TRUD in Russian  
30 Mar 84 p 1/ 7026

HIGH WORK TEMPO--Bryansk, 6 Apr--The holiday of the first furrow has been celebrated at kolkhozes and sovkhoses in Novozybkovskiy Rayon, the farmers of which have launched the busy period of spring work in Bryansk Oblast. Taking into account the peculiarities of this present spring period and the deficit of

moisture in the soil, the machine operators in all areas are carrying out their work at a high tempo. At the Komsomolets Kolkhoz, for example, the decision was made to complete the sowing of early grain crops in just 60 hours. In order to prevent a pause from taking place between the harrowing, cultivation and sowing work, the equipment is being employed in two shifts. Wide-cut soil cultivation and sowing units are being used. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 7 Apr 84 p 1/ 7026

PROTECTIVE EYEGLASSES--Starodubskiy Rayon, Bryansk Oblast--The autumn period last year was dry. On the one hand this favored the harvesting of the potatoes. But on the other hand -- such weather complicated the work of the machine operators. The fact of the matter is that the combines raised clouds of dust which penetrated through all of the cracks in the cabins. It was at this point that many recalled the need for dust-protective glasses. The rayon department of Sel'khoztekhnika stated: "We do not have such eyeglasses, nor are they to be found at the oblast base." Nor are they available for sale in the stores. It is believed that the republic association of Sel'khoztekhnika must display concern for ensuring that the machine operators are equipped with this means for protecting vision during the carrying out of the spring field work. /by F. Kuleshov, agronomist/ /Text/ /Moscow TRUD in Russian 26 Apr 84 p 2/ 7026

CONCERN FOR FALLOW FIELDS--Orel--"Clean fallow must be clean" -- such is the precept being followed by the oblast's farmers. Having completed their autumn plowing, the machine operators shifted their attention to the tracts set aside for fallow. The warm autumn promoted the growth of weeds and the drying out of the soil. And thus units with cultivators and harrows were moved out onto the fallow tracts. At the same time, a thorough top dressing is being applied to the fallow land in the form of compost and mineral fertilizers. Experience indicates that, under the conditions prevailing in Orel Oblast, each hectare of fallow land produces an increase in grain of 5-10 quintals. The area of fallow land has reached 100,000 hectares. /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 22 Oct 83 p 1/ 7026

SOWING PREPARATIONS NEARING COMPLETION--Orel, 5 Apr--The oblast's farms are carrying out their last preparations for sowing. In all areas the work plans are being discussed at meetings and brigades and teams have been staffed, the majority of which will operate on the basis of collective contracts. Special attention is being given to the quality of the seed. Prior to the beginning of April, all of the seed at the kolkhozes and sovkhoses corresponded to the sowing standards and more than 80 percent was classified as being of 1st or 2d class quality. /by I. Mironov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 6 Apr 84 p 1/ 7026

SOWING OF EARLY GRAIN CROPS COMPLETED--Orel, 27 Apr--The sowing of early grain crops was completed on the oblast's fields during the best agrotechnical periods. At the present time, the machine operators are successfully sowing their sugar beets and planting potatoes and vegetables. Thousands of tooth harrows and devices for sowing the grain seed and applying mineral fertilizers were produced during the winter for the kolkhozes and sovkhoses at workshops of raysel'khoztekhnika. /by A. Mikhaley/ /Excerpts/ /Moscow SEL'skaya zhizn' in Russian 28 Apr 84 p 1/ 7026



MOISTURE RETENTION WORK--Ryazan--Snowplows have been moved out onto the spring fields at the Yekmovskiy Sovkhoz. The machine operators are arranging the snowdrifts crosswise to the slopes, thus forming miniature lakes. In this manner they are following the advice of the scientists for regulating the thawing of the snow and for sharply reducing the runoff of the water. /Text/ /Moscow TRUD in Russian 23 Mar 84 p 1/ 7026

WEED CONTROL WORK LACKING--Unfortunately, this picture was observed on one of the ancient lands of the nonchernozem zone -- Novgorod Oblast, well known to each Soviet individual for its glorious history. Now a barren land, even individual quiet streets and lanes of Novgorod itself are overgrown with weeds: burdock, sagebrush, lamb's quarters. It would seem that they settled here ages ago and now stand as mementoes of the past. This "green fire" rages along the roads and on the territories of settlements and villages where subsequently we passed, particularly in Novgorodskiy, Shimskiy and Soletskiy rayons. It is obvious that the executive committees of the soviets of people's deputies of the mentioned rayons are not making full use of the authority extended to them for combating weeds on their territories. Nor are they demanding the carrying out of the necessary measures by the farms and population. /by V.V. Kasatkin/ /Text/ /Moscow ZASHCHITA RASTENIY in Russian No 2, Feb 84 p 19/ /COPYRIGHT: Izdatel'stvo "Kolos", "Zashchita rasteniy", 1984/ 7026

WINGED ASSISTANTS--Pskov, 6 Apr--The snow is rapidly disappearing from the fields. The pilots of agricultural aviation have commenced applying a top dressing to the sowings of winter grain crops and perennial grasses. The "winged assistants" have already applied mineral fertilizers to the initial thousands of hectares of land in Ostrovskiy, Pskovskiy and Pushkino-Gorskiy rayons. This season the aviators are applying a top dressing to the sowings and treating them with chemical preparations on an area in excess of 500,000 hectares. /by Z. Vasil'yev/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 7 Apr 84 p 1/ 7026

SOIL PREPARATION FOR SOWING--Pskov, 4 Apr--The busy period of spring work began very early this year in Pskov Oblast. In all areas a top dressing is being applied to the winter crops, an undersowing of the perennial grasses is being carried out and spring plowing and the disking and harrowing of autumn plowed land are being completed. The farmers and machine operators at the Sovkhoz imeni Zhdanov in Pskovskiy Rayon required only a week in order to apply nitrogen fertilizers to all 830 hectares of the winter fields. This work was completed in a rapid manner at the neighboring Signal Sovkhoz and the Peredovik and Krasnyy Boyets kolkhozes. The preparation of the soil for the sowing of spring crops is being carried out along a broad front. /by Z. Vasil'yev/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 5 May 84 p 1/ 7026

SOIL PREPARATION IN FULL SWING--The preparation of the soil for the sowing of winter crops is in full swing on farms in Domodedovskiy, Khimkinskiy, Mytishchinskiy, Voskresenskiy, Odintsovskiy and Podolskiy rayons, where more than 85 percent of the areas set aside for this purpose have already been plowed. At the present time, the farms in many rayons are already displaying genuine concern for the seed for their spring grain crops and for their insurance and especially carry-over funds. /Excerpt/ /Moscow LENINSKOYE ZNAMYA in Russian 16 Aug 83 p 1/ 7026

BEST AGROTECHNICAL PERIODS--The sovkhoses and kolkhoses in Voskresenskiy, Domodedovskiy, Klinskiy, Odintsovskiy, Krasnogorskiy and Khimkinskiy rayons carried out their soil preparation work during the best agrotechnical periods. At the same time, 24,000 hectares still remain unprepared for the winter crop sowing work, the task for applying organic fertilizers has not been fulfilled and some farms have not prepared sufficient seed to satisfy their requirements. The farms in Orekhovo-Zuyevskiy, Ramenskiy Shaturskiy, Solnechnogorskiy and Stupinskiy rayons have fallen behind in solving these problems. /Excerpt/ /Moscow LENINSKOYE ZNAMYA in Russian 23 Aug 83 p 1/ 7026

TOP DRESSING FOR WINTER CROPS--Ramenskoye (Moscow Oblast)--The farmers attached to the Ramenskoye (Moscow Oblast) RAPO /Rayon Agroindustrial Association/ have started applying a top dressing to their winter grain crops and perennial grasses. The fertilizer is being applied strictly in conformity with the cartograms and with the condition of the sowings being taken into account. Remote fields and measures are receiving their "portion" with the aid of agricultural aviation. The farms attached to other rayon agroindustrial associations in the capital oblast are also applying a top dressing to their winter crops. The sowing units are prepared to move out onto the plantations. /Excerpt/ /Moscow IZVESTIYA in Russian 18 Apr 84 p 1/ 7026

SOWING OPERATIONS COMPLETED--Klin (Moscow Oblast)--The farms of the Klinskiy RAPO in Moscow Oblast have completed their sowing operations. The farmers required only 48 hours for sowing spring grain crops on almost 5,000 hectares. Potatoes, root crops and perennial and annual grasses were also planted here in a rapid manner. The tone for this work was set by brigades and teams which had arranged their work based upon cost accounting procedures and upon the use of collective contracts. Other rayon agroindustrial associations in the capital oblast are also completing their spring sowing work. /Text/ /Moscow IZVESTIYA in Russian 19 May 84 p 1/ 7026

EARLY SOWINGS--Lukhovitsy (Moscow Oblast)--The early spring in Moscow Oblast year called for early sowing periods. The farmers in Lukhovitskiy Rayon were some of the first in the capital oblast to commence this work. More than 15,000 hectares have been set aside in the rayon for the grain crops. And in order to carry out the sowing work during the best periods, the farmers are working in two shifts out on the fields. The grain growers are striving to retain as much moisture in the soil as possible. Following the sowing, the soil will be packed using ring rollers. /Text/ /Moscow IZVESTIYA in Russian 18 Apr 84 p 1/ 7026

HIGH CHULPAN RYE YIELD--Kazan--The machine operators in the Tatar ASSR are laying the foundation for next year's harvest by using seed from the best varieties out on the winter crop fields. The largest area -- 450,000 hectares -- will be used for the Chulpan rye variety. This year it furnished an average of 25 quintals of grain. As a result, two thirds of the farms in the autonomous republic over-fulfilled their annual task for the sale of grain to the state and they liquidated the indebtedness of past years. /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 7 Sep 83 p 1/ 7026

SNOW RETENTION WORK--Kazan--The machine operators in the Tatar ASSR have commenced snow retention work on the third and last million hectares. Compared to last year, an increase of 600,000 hectares has taken place. This success

was achieved as a result of reliable preparation of the equipment and skilful maneuvering. In the autumn, windbreak strips -- strips of sunflowers or corn -- were left out on the fields in the southwestern portion of the autonomous republic. The stalks of the plants hold back the snow and prevent the wind from carrying away the moisture. /Text/ /Moscow TRUD in Russian 18 Feb 84 p 1/ 7026

SPRING CROP SOWING COMMENCES--Yoshkar-Ola--The farmers in the Mari ASSR have commenced sowing their spring crops. On almost two thirds of the agricultural land, concern is being displayed for the harvest by mechanized detachments which are operating on the basis of collective contracts. /Text/ /Moscow TRUD in Russian 28 Apr 84 p 1/ 7026

SOIL FERTILITY IMPROVEMENTS--Kazah--, 16 May--Since the beginning of the year, the farms in Apastovskiy Rayon have applied 5 tons of organic fertilizer per hectare of arable land. In raising the fertility of their land, they have received active assistance from subunits of raysel'khoshtekhnika and raysel'khoskhimiya. During a 3 month period of shock work, which is still taking place in the Tatar ASSR, 3 million more tons of organic fertilizer were delivered to the fields than were delivered at the beginning of last year. The agrochemical work being carried out at kolkhozes and sovkhoses in Baltasinskiy, Zelenodolskiy, Vysokogorskiy, Tukayevskiy, Nizhnekamskiy and other rayons has been well organized. At the same time, a number of other operations are being carried out in the autonomous republic: the liming of acid soils, the retention of thaw waters and preparations for applying a top dressing to the winter crops and perennial grasses. /by V. Goncharov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 17 May 84 p 1/ 7026

AIRBORNE TOP DRESSING--Cheboksary, 19 Apr--The pilots of the Cheboksary Aviation Enterprise are applying a top dressing to the winter crops and perennial grasses from the air. Each day, 25 aircraft of agricultural aviation circles over the fields of the autonomous oblast. Each crew is adhering strictly to the assigned work schedule. /by V. Goncharov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 20 Apr 84 p 2/ 7026

MULTIPLE-PURPOSE UNITS--Izhevsk--The farmers in the Udmurt ASSR are carrying out their sowing work using the industrial technology. They are employing wide-cut multiple-purpose units ganged with powerful tractors. During just one pass, they are harrowing, cultivating and sowing the soil. This is producing a savings in time and it is also serving to retain moisture out on the fields. The plans call for this progressive technology to be used for sowing 300,000 hectares. /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 26 Apr 84 p 1/ 7026

PREPARED FOR SPRING SOWING--Gorkiy, 29 Feb--The farmers in Gorkiy Oblast -- one of the largest in the nonchernozem zone of Russia -- are fully prepared for the spring sowing. More than 1 million hectares of arable land must be sown in spring crops. All of the conditions have been created for carrying out the work during the best agrotechnical periods -- all of the soil cultivation and sowing equipment has been repaired and the seed has been improved to a high condition. The structure of the mechanized sowing complexes has been defined. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 1 Mar 84 p 1/ 7026

TENDING FALLOW LANDS--Kazan, 14 May--More than 430,000 hectares have been set aside for use as fallow land this year in the Tatar ASSR. The farmers in the autonomous republic have commenced tending them. More than 10 million tons of organic fertilizer have already been applied to the fallow fields and the liming and phosphorizing of acid soil has been carried out on more than 28,000 hectares. The kolkhozes and sovkhoses are receiving a great amount of assistance from their partners in the agroindustrial complex -- the subunits of Sel'khozkhimiya. The workers in Apastovskiy, Arskiy, Baltasinskiy, Vysokogorskiy, Yelabuzhskiy, Aktanyshskiy and other rayons are efficiently observing the technology for tending clean fallow. This year the plans call for the fields to be enriched to a better degree with organic material using green manure -- "green fertilizer" is being applied to one out of every five hectares. Comprehensive agrochemical improvement of the fallow land will be carried out on one third of the areas. The land will be supplied with a complete set of nutrients in behalf of a programmed yield. /by V. Goncharov/ /Text/  
/Moscow SEL'SKAYA ZHIZN' in Russian 15 May 84 p 1/ 7026

HIGH SOWING RATES--Yoshkar-Ola--The machine operators in the Mari ASSR have moved the last units back off the fields occupied by early spring crops. Here the sowing of agricultural crops has been successfully completed on almost 200,000 hectares. The rates for this year's sowing work were higher than those for last year. /Text/ /Moscow IZVESTIYA in Russian 19 May 84 p 1/ 7026

HIGH QUALITY SOWING WORK--Ufa--The use of wide-swath units on the fields in the Bashkir ASSR and around-the-clock operations have been of great assistance in doubling the tempo of the sowing work. Roughly 1,200,000 hectares of arable land have been sown -- more than one third of the entire amount. Excellent work is being performed by those subunits which operate on a contractual basis. The machine operators at the Polyakovskiy and Bashtsik sovkhoses and at the kolkhozes Asyan in Dyurtyulinskiy and imeni Karl Marks in Znanchurinskiy rayons completed their sowing work in 50-60 hours and in a high quality manner. /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 8 May 84 p 1/ 7026

HOT MAY WEATHER--Bashkir ASSR--This year the snow disappeared early from the fields in the Bashkir ASSR. However, thereafter a period of prolonged cold weather set in. Dry windy weather aggravated the continuing problem of retaining the moisture in the soil. The kolkhozes and sovkhoses in the autonomous republic have taken these circumstances into account and are applying themselves in a very strict manner to introducing into operations a scientifically sound system of farming and improvements in the organization of labor. Almost one half of this year's grain crop sowings will be grown by non-schedule collectives. "All of the crop rotation plans in the rayon have been assigned to cost accounting teams" stated the 1st secretary of the Kushnarenkovskiy Rayon CPSU Committee F.K.Mullagaliyev. The sowing of early grain crops in the autonomous republic, with the exception of the northeastern zone, is nearing completion. The rayons in the central and southern zones were the first to complete their sowing work. The sowing of sunflowers and the leading technical crop here -- sugar beets -- is proceeding at a maximum tempo and the soil is being prepared for the corn and potatoes. The hot weather which prevailed towards the end of the first 10 days in May requires that the farmers



accelerate their work rates towards the end of the busy spring period and achieve efficient interaction among all teams in the sowing production line and highly productive use of each unit of equipment. And the non-schedule teams are successfully coping with this task. /by M. Merzabekov/ /Excerpts/ /Moscow SOVETSKAYA ROSSIYA in Russian 18 May 84 p 1/ 7026

SEED DISINFECTING WORK--Last year the campaign being waged against smut diseases in Orenburg Oblast was further activated. This problem was discussed during a seminar, at which time the station's specialists organized control over the timely and high quality disinfection of seed for spring and winter crops. As a result of measures undertaken, common bunt of wheat has been practically eliminated (it has been noted at only 2 of 540 farms. However, common bunt of wheat has been detected in 10 rayons where the campaign against loose smut is still insufficiently ineffective, since the oblast is not receiving sufficient quantities of systemic disinfectants. It also bears mentioning that the disinfection of seed is being carried out only under the control of the plant protection service and that a majority of the agricultural organs are not devoting proper attention to this work. Roughly 660,000 quintals of seed for winter crops have been disinfected in behalf of the 1984 harvest. The disinfecting of seed for spring grain crops has been in progress since December, with the equipment having been prepared in a timely manner for this work. The seed disinfection work is being carried out by 2,000 individuals, all of whom have passed medical examinations and have received special training. /by V.I. Kondrat'yev, chief agronomist at the Orenburg Plant Protection Station/ /Text/ /Moscow ZASHCHITA RASTENIY in Russian No 3, Mar 84 p 26/ 7026

COTTON SOWING COMMENCES--Termez, 23 Mar--Today the farmers in Surkhan-Darya Oblast commenced sowing their cotton. The units were moved out onto the fields of the Dzharkurgan and Shark Yulduzi sovkhoses in Dzharkurganskiy Rayon, located on the Babatag virgin land tract. The machine operators plan to complete this work as rapidly as possible -- within 10-12 working days. This will be promoted by use of the collective contract method, now being used by all of the field crop production brigades. Preparations have been made to commence the mass sowing work in all of the rayons in Surkhan-Darya Oblast. Again this year the republic's plans call for the greatest amount of fine-fibred cotton to be obtained from Uzbekistan's southernmost oblast. /Text/ /Ashkhabad TURKMENSKAYA ISKRA in Russian 24 Mar 84 p 1/ 7026

MANUAL LABOR ELIMINATED--Karshi, 9 Apr--The farmers in the Karshi Steppe region, who have commenced their mass sowing of cotton, are employing the industrial technology. Here, on the vast virgin land expanses, the advantages of this technology are being revealed most clearly, with the chief one being -- high results from low expenditures. "We are carrying out all operations only with the aid of equipment" stated Brigade Leader Ch. Ruzybayev of the Sovkhoz imeni V. Ul'yanov in Usman-Yusupovskiy Rayon, "During the winter each member of the brigade masters the machine operator specialty and learns how to operate several machines. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 10 Apr 84 p 1/ 7026

COTTON SOWING PREPARATIONS--Namangan, 24 Mar--The farmers of one of the largest rayons in the oblast -- Uchkurganskiy Rayon -- are fully prepared for sowing their cotton. Distinct from past years, the decision has been made here to sow the cotton on 80 percent of the area using denuded seed in ridges, with precision sowing of the seed in a nest, and at the Sovkhoz imeni Lenin and the kolkhozes Andizhan, Leninchi-Yul' and Yangirabad -- on the entire area. The

extensive introduction of progressive sowing methods is not only producing a savings of 414 tons of seed valued at 50,000 rubles, but in addition it is reducing the time periods and labor expenditures required for one of the most labor-intensive operations -- the thinning out of the seedlings. And this represents a true increase of 2.5-3 quintals of raw cotton per hectare. All of the conditions have been created for carrying out the work during the best agrotechnical periods -- the brigade contract method has been introduced into operations in all areas, all of the soil cultivation and sowing equipment has been repaired, seed and mineral fertilizers have been made available and local fertilizers have been applied to the soil. /by V. Vasetskiy/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 25 Mar 84 p 1/

COTTON SOWING PLAN--Tashkent, 30 Mar--Today in Uzbekistan the temperature is plus 20 degrees. Sowing operations have commenced in those areas where the soil has warmed up. The tractor units have been moved out onto the cotton fields in Dzharkurganskiy and some other rayons in Surkhan-Darya Oblast. At the Dzharkurgan and Shark Yulduzi sovkhoses, the collective contract brigades have resolved to complete their sowing of fine-fibered varieties of cotton in just 4 working days. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 31 Mar 84 p 1/

A LABORIOUS OPERATION--Namangan, 7 Jun--This present spring period has not indulged the cotton growers in Papskiy and other rayons throughout the oblast. But the farmers have ensured normal development for the plants. One of the most laborious operations -- the thinning out of the seedlings and the initial cultivation of the inter-row spacings -- was carried out in a very rapid manner. As a result, from 5 to 6 buds can now be clearly seen on the plants on one half of the sown area. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 8 Jun 84 p 1/ 7026

A MAY SNOWFALL--Yesterday the snow-clearing machines moved out onto the streets in Sverdlovsk and neighboring cities. An abundant amount of snow fell during a period of more than 24 hours. By morning the height of the snowdrifts had reached 30-40 centimeters. Municipal passenger transport and communications were operating normally. Only out on the fields was work halted -- work involving the sowing of peas, which had started during the warm holiday days. According to data supplied by the meteorological service's administration, a May snowfall is not considered a rarity in the Urals. But such an amount of precipitation -- the monthly norm in just one 24 hour period -- has happened only once during the past 100 years. /Text/ /Moscow TRUD in Russian 4 May 84 p 4/ 7026

SEED PREPARATIONS COMPLETED--Tashkent--The cotton growers of Uzbekistan have completed the work of preparing their seed for sowing. Although an increase has taken place this year in the cotton growing area, the requirement for seed is still not as great as that for last year. Two hundred thousand tons are sufficient for all of the plantations in Uzbekistan and there will still be an insurance fund remaining for use in the event of inclement weather. This was achieved by means of a sharp increase in the production of seed for use in precision sowing units. /Text/ /Ashkhabad TURKMENSKAYA ISKRA in Russian 25 Mar 84 p 1/ 7026



## POST HARVEST CROP PROCESSING

UDC 631.15:634 1/7:635 1/7

### MINISTER DISCUSSES INTENSIFICATION OF FRUIT, VEGETABLE PRODUCTION

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 4, Apr 84 pp 14-21

/Article by N. Kozlov, USSR Minister of the Fruit and Vegetable Industry:  
"Intensification of Production of Fruit and Vegetable Products"/

/Text In solving the tasks set forth in the Food Program, a very important role will be played by the fruit and vegetable complex. Thus the plans for the 12th Five-Year Plan call for an average annual production of vegetables and melon crops of 37-39 million tons, fruit and berries 14-15 million tons, grapes -- 10-11 million tons and potatoes -- 90-92 million tons. This will make it possible to raise the population's per capita consumption of vegetable and melon crops to 126-135 kilograms, fruit and berries -- 66 70 kilograms or to realize increases compared to 1980 of 30-39 and 74-84 percent respectively.

In the process, a chief concern in carrying out the established tasks is that of employing an all-round approach for the production, procurements, transporting, storage, processing and sale of products.

Specialized sovkhoses, canning plants and procurement, transport and trade organizations have been combined within the system for the union republic Ministry of the Fruit and Vegetable Industry for the purpose of successfully solving these tasks. Hence an opportunity has been created for carrying out a unified administrative-economic policy in the interactions of all elements of this complicated complex and for directing all operations in behalf of the final results -- improving the supply of fruit and vegetable products for the population in fresh and processed form.

Subunits within the system of the USSR Minplodoovoshchkhov /Ministry of the Fruit and Vegetable Industry/, engaged in the public sector and working 41 percent of the vegetable sowings and 27 percent of the perennial plantings of fruit and berry crops, are producing approximately one half of the vegetables, 40 percent of the fruit and berries, manufacturing more than three fourths of the fruit and vegetable canned goods, storing more than 50 percent of the potatoes, vegetables and fruit required for satisfying the trade and public catering requirements and selling more than 40 percent of the fruit and vegetable products through the subordinate retail trade network. The procurement organizations of USSR Minplodoovoshchkhov are purchasing from the kolkhozes, sovkhoses and other state agricultural enterprises and from the

population in the designated zone, approximately 60 percent of the vegetables and fruit, 20 percent of the potatoes and grapes and approximately 30 percent of the melon crops.

In September 1983 the Politburo of the CPSU Central Committee examined the problem concerning the work of the USSR Ministry of the Fruit and Vegetable Industry in connection with carrying out the decisions handed down by the party's central committee and the USSR Council of Ministers, decisions aimed at improving the organization of production, procurements, processing and the sale of fruit and vegetable products, grapes and potatoes. As mentioned during the meeting, the ministry carried out a definite amount of work during the course of carrying out the five-year plan aimed at strengthening the branch's logistical base, constructing storehouses and improving the procurements of fruit and vegetable products. Increases took place in the production of vegetables and melon crops and in the manufacturing of fruit and vegetable canned goods. The trade in vegetables and fruit improved somewhat.

At the same time, the work directed towards supplying the population with potatoes, vegetables, berries and other products and also organizing the trade in these products is lagging behind the population's requirements. The Politburo of the CPSU Central Committee has called for the implementation of practical measures aimed at improving the supply of potatoes, vegetables and fruit for the population and improving the quality and reducing the losses in products. The leaders of a number of construction and machine building ministries have been assigned one particular task -- to ensure the timely placing in operation of installations of the fruit and vegetable industry and the production of the machines and mechanisms required for this branch. The republic and local party and soviet organs must increase their control over the work of organizations and enterprises of the fruit and vegetable industry and furnish them with more practical assistance in developing the logistical base, improving the personnel situation and carrying out the tasks established by the 26th CPSU Congress with regard to consistently improving the supply of goods for the population.

In carrying out the decisions handed down during the November (1982) and the June (1983) plenums of the CPSU Central Committee, the labor collectives within the Minplodoovoshchkhov system waged a persistent campaign aimed at implementing the Food Program and together with the collectives of the fruit and vegetable complex they achieved definite results in 1983. Increases took place in the production and procurement volumes for potatoes, vegetables and fruit. Compared to 1982, 8 percent more potatoes were sold to the population, 3.4 percent more vegetables and 17 percent more fruit and citrus fruit. As emphasized in the decree of the December (1983) Plenum of the CPSU Central Committee and in the speech delivered by the General Secretary of the party's central committee K.U. Chernenko, during the special February (1984) Plenum of the CPSU Central Committee, importance is attached to maintaining the required tempo and a good working atmosphere during the practical carrying out of tasks, to develop the positive trends in a more active manner and to make them stable in nature.

The principal directions to be followed for solving the important problem of satisfying completely the population's requirements for fruit and vegetable products are:

...proportional and balanced development of the fruit and vegetable complex, improvements in administration, planning and economic incentives in all of its branches, with maximum orientation of production towards achieving high final results;

...achieving high rates for agricultural production based upon consistent production intensification -- strengthening the logistical base, specialization and concentration, highly efficient land utilization and the accelerated introduction of scientific achievements and leading experience into operations;

...maximum improvements in the use of the production-technical potential of the system and its further intensification and a considerable increase in the return from capital investments and material resources;

...a campaign to realize economies and thrift, a reduction in losses and an improvement in the quality of products through the extensive introduction of progressive technologies for storage and processing and the organization of shipments using specialized and other types of transport;

...further improvements in the social and domestic living conditions of the branch's workers.

In conformity with the ever-increasing level of equipment development, the Food Program calls for the creation of large specialized farms and agro-industrial enterprises for the production and processing of fruit and vegetable products in the southern oblasts of the Russian Federation, Ukrainian SSR, Kazakh SSR, the republics of Central Asia, the Trans-Caucasus and the Moldavian SSR. A base must be created in these regions for supplying the city populations in the center, the northern European part of the country, the Urals, Siberia and the Far East with the products of heat-loving fruit and vegetable and berry crops.

At the present time, work has already been carried out here in connection with production concentration and farm specialization within the USSR Minplodoovoshchkhov. Each enterprise will now produce approximately 10,000 tons of vegetables annually. In 1983, almost 400,000 tons of vegetables were produced at 50 southern specialized sovkhovs.

Similar work in connection with production concentration and specialization is being carried out in horticulture in the southern regions of the country. During the current five-year plan, 148,000 hectares of intensive orchards will be planted here and the vineyard areas will be increased by 90,000 hectares. Thus, in the north Caucasus and prior to the end of the five-year plan, the plans call for the creation of 18 specialized farms with an overall orchard area of 20,000 hectares, consisting mainly of winter varieties of apples and pears. These trees will reach the fruit-bearing age by 1990 and will supply 150,000 tons of fruit, of which amount 100,000 tons will be delivered to the northern regions of the country. More attention must be given to the raising of stone-fruited crops. Over the next few years, the plans call for these areas to be expanded to 103,000 hectares and this will make it possible, by 1990, to increase the yield of mazzard cherries, plums, cherries and other fruit to 370,000 tons.

During the last few years of the current five-year plan, 80 new fruit and grape sovkhozes were organized in the Uzbek SSR. Measures undertaken throughout the republic will make it possible by 1988 to raise the production of currants to 70,000 tons, that is, considerably more than the level already achieved. All of this will make it possible to supply the union fund with up to 150,000 tons annually of the best table varieties of fresh grapes. The implementation of measures aimed at creating a powerful production base for the fruit and vegetable industry in the southern regions of the country will make it possible, in 1990 and compared to 1980, to increase the deliveries of fresh vegetables to the all-union fund by 620,000 tons or by 30 percent more and fruit and grapes by 1.5 million tons, that is, more by a factor of 2.

During the May (1982) Plenum of the CPSU Central Committee, special attention was also given to raising the responsibility of the local party, soviet and agricultural organs with regard to satisfying the population's requirements for potatoes, vegetables, fruit and berries, through their production in the consumption regions and primarily in the vicinity of large cities and industrial centers. Farm specialization work in this regard is being carried out with maximum use being made of the specific climatic and economic conditions of each region and with consideration being given to developing the region's productive forces. Concentration in the production of vegetables has already been carried out and specialized sovkhozes have been created around Moscow, Leningrad, Kiev, Vilnyus, Sverdlovsk, Donetsk, Omsk, Tomsk Dnepropetrovsk and many other cities. These farms are satisfying almost completely the requirements of the populations of nearby cities for cabbage, carrots, beets and green products. A great amount of attention is being given to supplying fruit and vegetable products for the residents of the country's largest industrial region -- the nonchernozem zone of the RSFSR. During the course of the current five-year plan, 25 specialized sovkhozes will be created here on reclaimed lands having an overall production volume of approximately 300,000 tons of fruit and vegetables.

Maximum satisfaction of the population's requirements for fruit and vegetable products by means of local production will make it possible to lower transport expenses considerably and, even more important, it will make it possible to improve the quality of the products and reduce losses as a result of their being accepted directly on the farms, that is, based upon the "field to store" system. Fine results can be achieved from production specialization and concentration only on the basis of improvements in the technical level of production and in its modern technology and also through the extensive use of effective agrotechnical methods, leading experience and, in the final analysis, a maximum return from each hectare, that is, by raising the intensity for all branches of combined production.

At the present time, scientifically sound farming systems have been developed for all of the natural-economic zones. The introduction of their leading element -- efficient crop rotation plans -- is making it possible to raise considerably the cropping power of the vegetable crops. In the process, efficiency can be raised substantially through the skilful selection of varieties and hybrids, by combining various sowing methods and through the use of organic and mineral fertilizers and plant protective agents.



The development of high and stable yields of potatoes, vegetables and fruit is also dependent upon these crops being sown on reclaimed lands. In 1983, 76 percent were cultivated on irrigated lands and the task has been assigned for 1990 -- of completely converting over to the production of vegetables, fruit and potatoes on watered lands, with use being made of new equipment and a modern technology.

In recent years, the development of a system of machines has been completed in the country and, based upon this new equipment, an extensive check was carried out on the progressive technologies under production conditions. The use of the modern technology, taking into account the natural-economic peculiarities, made it possible to achieve a tomato cropping power of no less than 400 quintals per hectare, white-head cabbage -- 700, cucumbers -- 200, carrots -- 450 and common onions -- 200 quintals per hectare, with a considerable reduction in labor-intensiveness. In 1983, in the Russian Federation alone, vegetables were grown on 43,000 hectares using a mechanized technology, including cabbage on 8,000, table root crops on 22,000, common onions on 6,000 and tomatoes on 7,000 hectares. According to data supplied by the farms, the cropping power on these areas was higher by a factor of 1.5-1.8 than that obtained when the former technology was employed and with a considerable reduction in labor expenditures. Overall, in 1983 vegetable crops were grown throughout the country using progressive technologies on 78,000 hectares, including at enterprises of the Minplodoovoshchkhkh system on 55,000 hectares.

However, further improvements in the technology and more complete production mechanization are possible only if an adequate number of serially produced complexes and new special machines are available for a particular crop. At the present time, the machines being produced are not complete when delivered to the farms. For example, industry produced only 1,166 tomato harvesting SK-2 combines and the farms required 2,600 units and the SPT-15 sorting points required for these combines were for all practical purposes not produced whatsoever. A similar situation exists in the case of machine complexes for the harvesting of table root crops. A PSK-6 sorting point is being produced for this crop and the production of the combines has still not been mastered.

This year the scientific-research institutes are directing their efforts towards accelerating works associated with the selection of varieties and evaluating them for their suitability for industrial production conditions; unification of a technology for the cultivation of individual crops by zones of the country, using special complexes of machines and units; creation of a series of multiple-row harvesting machines and highly productive sorting lines, which will make it possible to ensure a mutual link between the harvesting and commodity processing operations and also between the storage and processing of the products.

In order to ensure that the population is supplied with fresh vegetables on a continuous basis, and especially during the winter and spring period, an important role must be played by their production on sheltered ground. Over the past 10 years, approximately 4 billion rubles have been invested in the development of this highly intensive branch of production. Winter hothouses alone have been built on 2,500 hectares and these facilities possess the potential for obtaining high and stable yields. Prior to 1990, another 4,100

hectares of hothouses under glass and plastic will be placed in operation on the farms. Compared to 1981, the production of vegetables on sheltered ground in 1985 will be increased by 204,000 tons and amount to approximately 1 million tons. Moreover, the plans for 1990 call for 1.25 million tons of vegetables to be produced.

Large hothouse combines have been built in Moscow and Leningrad oblasts and also around the capital and other large cities in the union republics. At the present time, there are approximately 300 hothouse combines, with an average area of 3 or more hectares, in operation throughout the country. Secondary sources of thermal power -- the exhaust head of gas compressor stations and industrial enterprises and thermal waters -- are being utilized more extensively on sheltered ground. For more than 20 years now, a hothouse combine heated by thermal waters from the depths has been in operation on Kamchatka. During the mid-1970's, hothouses based upon the use of thermal waters were placed in operation in Mostovskiy Rayon in Krasnodar Kray. They are still in operation today. A hothouse combine to be operated based upon heat from the Kursk Atomic Electric Power Station is under construction. Many hothouse combines in operation in the Urals, Siberia and the Far East are using the heat of GRES /state regional electric power plant/ and TETs /heat and electric power plant/. A great amount of attention is being given to the development and introduction of new machines and equipment for mechanizing operations and for automatically regulating the microclimate in hothouses.

With the conversion over to the intensive path of development, even greater importance is being attached to the creation and introduction of new and highly productive varieties and hybrids for vegetable and melon crops. At the present time, 780 varieties and hybrids for vegetable-melon crops have been regionalized in the country, including 632 vegetable crops broken down as follows: white-head cabbage -- 72, tomatoes -- 73, cucumbers -- 64, common onions -- 61, garlic -- 30 and vegetable peas -- 28.

The plant breeders are carrying out work concerned with the creation of highly productive vegetable crop varieties and hybrids which will be suitable for mechanized cultivation. Towards this end, 39 varieties and hybrids of vegetable crops have been regionalized. The scientists are striving to develop varieties and hybrids which possess complete resistance against diseases, fine keeping and transporting qualities and also high food and technological qualities.

Compared to the 10th Five-Year Plan, the average annual purchases of vegetable and melon crop seed throughout the country during 3 years of the current five-year plan increased by 14 percent. The sovkhoses of Minplodoovoshchkhov have assumed a leading place in the country in the production and sale to the state of high quality vegetable crop seed. At the same time, the seed purchases for such crops as carrots, onions, late cabbage varieties and vegetable peas are unstable and their production is still not guaranteed in a number of regions. This is the result of the dispersion of seed production among numerous farms of various ministries and departments and it also results from the unsatisfactory distribution of seed production among the country's zones. For example, the principal production of seed for carrots, onions and cabbage is located in zones characterized by unfavorable climatic conditions.



Measures are presently being undertaken to increase, by 1985, the production of seed for cabbage, carrots and table beets, at sovkhozes of Minplodoovoshchkhov, to volumes which will ensure 80-85 percent of the planned requirements of the public farms for such seed. Subsequently, seed production for vegetable crops will be specialized in zones having favorable soil-climatic conditions: in the republics of Central Asia, the Trans-Caucasus, Kazakh SSR, southern oblasts of the RSFSR and the Ukrainian SSR. In the interest of raising the intensity of seed production operations, the plans call for a considerable increase in capital investments for the construction of standard storehouses for the seed of biennial vegetable crops and for an increase in the deliveries of fertilizer, herbicides and toxic chemicals to the seed production farms.

The horticulturists and viticulturists are confronted by great tasks. In order to ensure complete satisfaction of the requirements of the Soviet people for fruit and berries during the next few years, it will be necessary to implement a complex of measures for accelerating the development of orchards and vineyards and raising the cropping power and gross yields of the fruit and table varieties of grapes.

Towards this end, the ministry is consistently carrying out measures aimed at raising the level of agrotechnical work in the orchards and achieving more efficient use of many intensive factors. Irrigation is an important intensive factor associated with raising the cropping power. However, of 347,000 hectares of fruit-bearing orchards on farms of Minplodoovoshchkhov, only 145,000 hectares are under irrigation. In order to raise horticulture to a high intensive level, the area of orchard irrigation must be raised sharply in the near future. An acute problem in horticulture continues to be that of mechanization of operations. The level of such mechanization still does not exceed 15-20 percent and it is being held back by insufficient support for the farms in terms of special machines.

Great economic and organizational-administrative importance is being attached to the planned replacement of obsolete plantings and economically unprofitable varieties by varieties having excellent taste qualities and which are suitable for industrial technologies and make it possible to raise labor productivity to the maximum possible degree. Existing plans and the recommendations of scientists point to the possibility of accelerating the introduction of the latest scientific achievements and leading experience and achieving a more rational combination of the strain and variety structure with the more productive use of natural conditions, man-power and equipment.

Work carried out at the Agronom Sovkhoz in Dinskiy Rayon, Krasnodar Kray can serve as an example of the use of an all-round approach in horticultural development. Here fruit production is being developed on a scientific basis, in a unified complex involving the industrial processing of a portion of the products, the extended storage of fresh fruit and the wholesale release of products in both fresh and processed form.

The overall area of agricultural land amounts to 4,789 hectares, including 2,651 hectares of perennial plantings. The proportion of horticultural products in the farm's marketable output is 88 percent. A profit of 4.5 million rubles is realized from horticulture each year. During the years of the 11th Five-Year Plan the cropping power of the orchards increased by 30 quintals per

hectare and in 1983 it amounted to 211 quintals per hectare. All of this became possible as a result of the agricultural practices employed, the use of more productive varieties and seedling stock, the introduction of integrated protective methods and a harvesting production line technology and well equipped transporting of the fruit.

Almost one half of the gross yield of fruit at the sovkhos is immediately placed in containers for prolonged storage. For this purpose the farm has at its disposal three fruit storehouses with an overall capacity of 8,150 tons. Each year the sovkhos's canning plant processes 2,500 tons of fruit and berries and produces 2 million standard tins of preserves, jams, compotes and juices. The plant's structure includes a canning and juice department and also a line for the production of dry fruits. Each year the plant furnishes the sovkhos with approximately 100,000 rubles worth of profit.

Deserving of special mention is the production of fruit from stone fruit crops and berries, so necessary for man. Stone fruit crops presently occupy 237,000 hectares on the public farms. Their proportion of the overall orchard area does not exceed 12 percent. In conformity with the decisions handed down during the May (1982) Plenum of the CPSU Central Committee, the purchase prices for the fruit of stone fruit crops were raised by 50 percent in 1983. This must raise considerably the interest of the farms in increasing their production of cherries, mazzard cherries, cherry-plums, plums, apricots and peaches. A great amount of organizational work is presently being carried out for the purpose of increasing the production of these crops. The establishment of new orchards that will be harvested on a mechanized basis is being accelerated in the more favorable regions for fruit production. Thus the Kubanskiy Sad Sovkhos is being created in a suburban zone in Krasnodar Kray. Once the trees reach the fruit-bearing stage, the farm will annually obtain more than 3,500 tons of mazzard cherries, peaches, apricots, cherry plums and plums. Moreover, machine harvesting operations will be carried out on 70 percent of the areas used for stone fruit crops. During the years of the 11th Five-Year Plan, more than 41,000 hectares of intensive orchards were planted at sovkhoses of Minploodoovoshchkhos.

In the work being carried out by the ministry, a great amount of attention is being given to expanding the berry plantations. During the current five-year plan, 38,000 hectares of berry patches will be planted. Specialized farms are being created mainly around large cities and industrial centers throughout the country. Industrial technologies have been developed for the production of a number of berry crops and the possibility of mechanizing many labor processes is increasing.

Further horticultural development, the establishment of new orchards and berry patches in the required strain and varietal structure and also the renovation of existing plantings are becoming possible owing largely to the work of nurseries. This year 70 basic fruit nurseries are being created for the growing of non-virus elite planting stock, with such stock to be reproduced subsequently on fruit-nursery farms. In 1983, 43 million fruit crop seedlings were grown, including 3 million of the non-virus type. The production of seedlings which are in short supply on slow-growing seedling stock increased by 40 percent.

Grapes are considered to be a very valuable food product. The population's requirements for grapes are still not being satisfied. Thus the country's viticulturists were assigned the task of planting more than 90,000 hectares of vineyards, mainly for table and seedless grape varieties. The carrying out of this program will make it possible by 1985 to raise the production of grapes at sovkhoses of Minplodoovoshchkhos to 1,110,000 tons, including 340,000 tons of table varieties and 75,000 tons of seedless grapes.

Over the past 3 years the sovkhoses of the USSR Ministry of the Fruit and Vegetable Industry implemented a number of measures aimed at increasing the production of grapes, mainly by means of raised cropping power and an expansion of the areas at specialized farms, which are improving their operational indicators with each passing year. Thus wonderful results are being achieved each year by the collective of the Ogonek Sovkhoz-Plant in Tashkent Oblast. During 1981-1982 alone, an average of 3,415,000 rubles worth of profit was obtained here annually, including 1,725,000 rubles worth from grapes. The workers at this farm are constantly searching for reserves for further increasing their grape production and they are implementing measures aimed at raising production efficiency: they are modernizing their vineyards and they are replacing the technical varieties with table varieties, particularly the black seedless grape.

Work is being completed this year on the development of a general plan for the long-range development and distribution of vineyard plantings by zones and economic regions at sovkhoses of USSR Minplodoovoshchkhos. The plans call for the overall vineyard plantings to be increased to 274,800 hectares, including table varieties -- to 104,000 and seedless grapes -- to 35,300 hectares. As a result, the gross production of grapes will reach 1.8 million tons by the end of the 12th Five-Year Plan. Compared to 1981, the production of table and seedless varieties of grapes will have increased twofold.

Packaging will play a great role in improving the preservation of the quality of the fruit and vegetable products and lowering losses in them. Towards this end, the production of polymer crates and trays, thin-walled wooden crates and crate pallets is being expanded. By 1986, it is expected that the capability for producing polymer crates for the transporting of fruit and vegetable products will have been raised to 11 million units annually. This will make it possible to realize a savings of approximately 250,000 cubic meters in the use of wood.

A considerable reduction in fruit and vegetable product losses and an increase in labor productivity during loading and unloading work are being achieved through the use of crate pallets and heat-contracting polyethylene plastic. The use of these materials (1 ton) makes it possible to realize a savings of up to 140 cubic meters of cardboard and wood packaging materials. In 1984, 13 additional lines will be installed at enterprises of the ministry for group packaging in heat-contracting plastic.

In the interest of presenting the fruit and vegetable products to the consumers in a more suitable form, the packaging and small scale wrapping of these products will be carried out on an extensive scale. This requires the use of modern packaging materials made out of strong polyvinylchloride, based upon the use of aluminum foil and also polyethylene plastic and netting. The work by

Minplodoovoshchkhov in developing the production of transport and technological packaging materials is being carried out jointly with Minlegpishchemash /Ministry of Machine Building for Light and Food Industry and Household Appliances/ and Minaviaprom /Ministry of the Aviation Industry/. New types of food polishes, plastisols and combined single-layer and multiple-layer cardboard and foil materials are being developed with the aid of Minkhimprom /Ministry of the Chemical Industry/.

Transport is of great importance with regard to preserving the quality of the products. At the present time, the various types of fruit and vegetable products are being delivered by all types of transport. Thus a requirement exists for determining in a sound manner the most efficient transport routes and to select the best types of transport equipment. It is noted that the plan which existed earlier for organizing shipments of fruit and vegetable products did not ensure to the proper degree the preservation of the quality of the products. Moreover, it led to considerable losses and it did not exclude the possibility of counter, long-distance or repeated shipments.

A great amount of work is being carried out jointly with the MPS /Ministry of Railroads/ aimed at accelerating fruit and vegetable deliveries by means of railroad transport. Increases are taking place from year to year in shipments of products over special routes and this is making it possible to reduce the delivery times by 2-3 days and to lower losses during transport by 10-15 percent. During 1981, 185 routes were employed, in 1982 -- 403 and in 1983 -- 690 routes.

Both foreign and domestic experience testify to the effectiveness of motor vehicle transport for fruit and vegetable shipments. Faster deliveries and a reduction in the number of trans-shipments of products and also the possibility of delivering the products directly from the field to the store -- these are the principal advantages of motor vehicle transport operations. For example, fine results were realized from motor vehicle shipments of cherries, mazzard cherries, peaches, apricots, grapes, tomatoes and other products from the Moldavian SSR to the European part of the country and early potatoes from the Georgian SSR to Moscow.

In 1982, more than 80,000 tons of fruit and vegetable products were shipped using the motor transport equipment of the consignees (self-shipments). This volume reached 120,000 tons in 1983. In 1983, the organization of more than 67,000 tons of fruit and vegetable products for shipment by the motor transport vehicles of the Minplodoovoshchkhovs for the UkSSR, BSSR and the Baltic republics reduced considerably the annual shortage in railroad freight cars. This also made it possible to create the conditions required for timely shipments of the crops as harvested and it also ensured the planned volumes of fruit and vegetable products of an improved assortment and quality.

Shipments by river transport were also further developed. Six mechanized piers are under construction on the Volga River Delta. The plans call for the construction of river fruit and vegetable bases in the large cities. Shipments of fruit and vegetable products by passenger airlines were organized for the very first time in 1983 and this made it possible to ship more than 5,000 additional tons of fresh vegetables and fruit to regions in Siberia and the Far North.



Continuous support for the population throughout the year in the form of fresh vegetables, fruit and potatoes, preservation of the products and reduced losses are greatly dependent upon the availability and condition of a logistical base and upon the conditions for introducing progressive storage methods. At the present time, more than 6 million tons of fruit and vegetable products and potatoes are being placed in storehouses. However, this volume is still not meeting the requirements of the ministry's fruit and vegetable economy. A portion of the output is still being stored in clamps and adaptable facilities and this inevitably tends to increase losses.

Storehouses for handling more than 2 million tons are being built during this current five-year plan. Moreover, approximately 40 percent of this capability will be located directly in the production areas for the fruit and vegetable products. This will make it possible to reduce shipments of sub-standard products to the trade networks for cities and also to preserve the quality of the products during transport.

The processing industry constitutes one of the most important elements of the fruit and vegetable economy. During the course of processing highly perishable products into finished products and in addition to preserving their quality, an opportunity is created for providing the populations in various regions of the country with more uniform deliveries of these products throughout the year. This is especially important for regions in Siberia, the Far East and the Far North. In 1983, in regions of the Far North alone, more than 300,000 tons of fruit and vegetables were delivered in processed form. More than 2 billion standard tins of fruit and vegetable canned goods were delivered to industrial centers in the European part of the USSR from southern regions of the RSFSR and the Ukraine, Moldavia and the Trans-Caucasus republics.

The processing volumes for fruit and vegetables in our country are steadily increasing. During 3 years of the five-year plan, the production of canned goods at enterprises of our system increased by 1,450,000,000 standard tins and amounted to 9,035,000,000 standard tins. However, the existing capabilities of the processing industry for fruit and vegetable products still leave us dissatisfied. The prospects for further development of the canning industry were set forth in the Food Program. It calls for the production of 11.4 billion standard tins of canned goods in 1985 and in 1990 -- up to 12.8 billion. A great amount of attention is being given to the production of quick-freezing fruit and vegetable products and dry fruit and also to developing the production-technical base for the production of these products. By 1990, the production volume for quick-freezing marketable products will increase to 130,000 tons, compared to 6,800 tons produced in 1983 and dry fruit -- to 60,000 tons.

The ministry is carrying out a program aimed at bringing the processing industry as close as possible to the production areas for the fruit and vegetables. This is making it possible to lower the transport expenses considerably and also to raise the quality and preservation of the fruit and vegetable raw materials. The plans call for high rates of development for the canning industry in the southern regions of the RSFSR, the Ukrainian and Kazakh SSR's, in the republics of Central Asia, the Trans-Caucasus and in the Moldavian SSR, through the creation of large specialized farms and agroindustrial

associations for the production and processing of fruit and vegetable products. The production of dried apricots and raisins will undergo considerable development in Uzbekistan and Tajikistan.

The plans also call for organizing the construction of production-distribution enterprises in the large cities. They will be supplied with semi-finished goods from the southern regions by means of specialized transport and following packaging or wrapping these goods will be sold in the retail trade.

An important role is played by the processing of raw materials using low-waste or waste-free technologies. The use of secondary raw material resources (apple and grape pomace, fruit pits and tomato seed) continues to increase, with additional food products being obtained from such use: pectin, fruit powders, tomato and fruit pit oils.

As one means for achieving efficient use of fruit and vegetable products and preserving their quality, direct contacts between the kolkhozes and sovkhoses on the one hand and trade enterprises on the other will undergo further development and strengthening. The "field-to-store" principle is being employed by many agroindustrial associations and gorplodoovoshchtorgs /municipal trade organization for trade in fruit and vegetable goods/ in the Russian Federation, the Ukrainian SSR, Azerbaijan SSR and Moldavian SSR. The advantages here are obvious. The sovkhoses obtain higher prices for their products, excessive trans-shipments are eliminated and there is less product spoilage. A chief consideration is the fact that the population is supplied with fine quality potatoes and fruit and vegetable products.

This year there are 7,700 specialized stores in the trade network of Minplodoovoshchkhov, with 700,000 square meters of trade space. This is satisfying the trade requirements by only 40 percent. The construction of fruit and vegetable stores and the installation in them of modern refrigeration and trade-technological equipment have been started for the purpose of improving the trade operations. The plans for this current five-year plan call for an increase of 90,000 square meters in the area of stores in the retail trade network, through new construction and the modernization of existing enterprises. Trade operations through the light retail network, especially during the season of mass fruit and vegetable deliveries, will undergo further development.

An important role is being played by the new forms and methods for labor organization, for strengthening labor discipline and for increasing the responsibility of workers for the most efficient use of material resources.

The ministry's organizations and industrial enterprises are making extensive use of all-round and multiple-skill brigades, which operate on the basis of unified orders and which are paid on the basis of final results. These forms encompass approximately 30 percent of the workers in the principal production effort. Labor productivity increases at a higher rate in such brigades, reductions take place in the losses in working time, material and labor resources are consumed in a more thrifty manner and opportunities become available for further improving organizational and political-educational work and strengthening labor, technical discipline and socialist enterprise.



In 1984, all of the labor collectives in the ministry's system undertook tense socialist obligations. In carrying out the decisions handed down during the December (1983) Plenum of the CPSU Central Committee -- an above-plan increase is being achieved in labor productivity and in lowering the output production costs. For this present year, the workers attached to the Minplodoovoshchkhov system have resolved to raise labor productivity by 1.2 and to lower output production costs by 0.5 percent. In this manner, an increase of 80 million rubles will be achieved in the production volume for industrial output. The plans call for the purchases of fruit, vegetables and potatoes to be raised by 4 percent above the established plan and for capabilities for producing 112 million standard tins of canned goods and storehouses for holding 61,000 tons to be placed in operation. In addition, the construction volumes for housing and buildings of a social and cultural nature.

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## POST HARVEST CROP PROCESSING

### REPORT ON MEETING OF COLLEGIUM OF FRUIT AND VEGETABLE INDUSTRY

Moscow ZAKUPKI SEL'SKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 4, Apr 84 pp 3-5

/Article: "Urgent Tasks of the Branch"/

/Text/ In early February of this year, an expanded meeting of the Collegium of the USSR Ministry of the Fruit and Vegetable Industry was held, during which an examination was carried out on the question of "Results of Fulfillment of the State Plan for the Economic and Social Development of the USSR During 1983 Within the USSR Ministry of the Fruit and Vegetable Industry and the Branch's Tasks for 1984 In Light of the Decisions Handed Down During the December (1983) Plenum of the CPSU Central Committee."

A report was delivered before the Collegium on this matter by the minister of the fruit and vegetable industry of the USSR N.T. Kozlov. In particular, he commented upon the great role being played by the fruit and vegetable complex in the carrying out of the country's Food Program. As a result of implementation of the decisions handed down by the 26th party congress and the measures outlined during the May, November (1982) and June (1983) plenums of the CPSU Central Committee for improving management and raising the level of organization and discipline during the past year, further improvements were realized in the all-round development of the production, procurements, processing and sale of fruit and vegetable products and potatoes. An increase took place in the rates for developing the logistical base for storage and processing.

Compared to 1982, gross agricultural output increased by 5 percent, industrial output -- by 6 and retail commodity turnover -- by 4 percent.

Compared to 1982, in 1983 the ministry's agricultural enterprises increased their sales of products to the state: potatoes -- by 12 percent, melon crops -- by 10, fruit and berries -- by 11, grapes -- by 19, milk -- by 6 and livestock and poultry meat -- by 8 percent. An increase of 3 percent also took place in the production and sale to the state of hothouse-greenhouse and early vegetables. The assortment of vegetables under cultivation was expanded to 30 types.

In 1983 the procurement organizations of Minplodoovoshchkhov /Ministry of the Fruit and Vegetable Industry/ purchased 3.2 million more tons of fruit and vegetable products and potatoes than they did in 1982. The minister commented

upon the fine work carried out by the procurement specialists in the Tajik, Turkmen, Kirghiz and Azerbaijan union republics in fulfilling the plans for vegetable purchases. He emphasized also that some improvements were realized last year in procurement-marketing operations in the Russian Federation and that an increase had taken place in the proportion of all types of products delivered to the all-union fund by the republic's Minplodoovoxhchkhov.

In 1983 the fulfillment of the plan for delivering potatoes, vegetables and grapes to consignees of the all-union fund was ensured. Compared to 1982, larger volumes of products were delivered to the all-union fund: potatoes -- by 15 percent, vegetables -- by 2, fruit and berries -- by 32, grapes -- by 12 and melon crops -- by 9 percent. An increase took place in the assortment of vegetables being added to the state resources or delivered to consumers of the all-union fund.

However, the 1983 plan for the sale of potatoes, vegetables, melon crops, fruit, berries and grapes was not fulfilled by the sovkhozes or other agricultural enterprises of the ministry.

The farms of the ministries for the Ukrainian SSR, Belorussian SSR, Kazakh SSR, Georgian SSR, Azerbaijan SSR, Moldavian SSR and the Turkmen SSR were guilty of the greatest indebtedness to the state in terms of fruit and berry sales to the state.

In carrying out the plan for selling potatoes to the state, a considerable lag developed in the Turkmen SSR, the Armenian SSR, Georgian SSR, Kazakh SSR and in the Ukrainian SSR. The procurement specialists of the ministries of the fruit and vegetable industry for the Ukrainian SSR, Moldavian SSR and the Armenian SSR did not perform as well as the procurement specialists for other systems in these same republics and thus a reduction took place in the procurement volumes compared to 1982. The ministries of the fruit and vegetable industry for the Belorussian SSR, Uzbek SSR and the Kazakh SSR did not fulfill their vegetable procurement plans.

Unfortunately, the discipline for delivering products to the all-union fund is not being observed in all areas. This applies primarily to the Ministry of the Fruit and Vegetable Industry for the Moldavian SSR. The systematic non-fulfillment of the plans for carrying out deliveries to the all-union fund is forcing the consignees assigned to this republic to request more obliging suppliers.

The plans for potato deliveries to the all-union fund were not fulfilled by the procurement organizations for the Russian Federation, the Kazakh SSR or Georgian SSR and in the case of vegetables -- by the Ukrainian SSR, Kazakh SSR, Georgian SSR and the Moldavian SSR.

According to the minister, the plan and socialist obligations for 1984 called for considerable growth in the procurement volumes and the deliveries of products to the all-union fund. The central apparatus of the union ministry and republic ministries must constantly display concern for ensuring that such growth takes place on an unconditional basis.

The report focused attention on the reserves available for the production and procurements of fruit and vegetable products and potatoes, the use of which is required in order to fulfill successfully the sales plans and to improve the supply of fresh and processed fruit and vegetable products for the population. The minister pointed out that this requires the implementation in all areas of a complete complex of organizational and agrotechnical measures, which will serve to guarantee that the planned yields will be obtained. This is a principal condition for raising the efficiency of the production operations. And this complex is well known and has been checked in actual practice and confirmed by science -- it includes further production concentration and specialization, the conversion of vegetable production and horticulture over to irrigation, the introduction of industrial technologies, the modernization of orchards and vineyards and the waging of a decisive campaign against crop losses during harvest operations, transport and storage.

Specific examples were cited in the report for illustrating the sharp differences in fruit cropping power in certain neighboring oblasts. Thus, in 1983 the farms in Voronezh Oblast obtained 85 quintals of fruit and berries per hectare and in Belgorod Oblast -- only 53, in the Kabardino-Balkar Autonomous Republic -- 91 and in the neighboring North Osetian ASSR -- only 44 quintals. Just as in the past, the cropping power of orchards in the Belorussian SSR remains low -- 6.7 quintals of fruit per hectare, while at the same time 55 quintals were obtained in Lithuania and in Latvia -- 63 quintals per hectare.

Last year the planned cropping power for vegetables was obtained only at sovkhoses in the Uzbek and Azerbaijan SSR's, fruit and grapes -- Uzbek and Tajik SSR's and compared to the indicators for 1982 a reduction was even noted in cropping power at sovkhoses in a number of republics. In 1983, sovkhoses of the Ministry of the Fruit and Vegetable Industry for the Moldavian SSR obtained 32 fewer quintals of vegetables per hectare than were obtained the previous year and in the Ukrainian SSR -- 19 quintals less. A comparison of the operational results of leading and backward farms reveals that the labor and material expenditures per hectare are roughly the same and yet the final results are different.

The minister emphasized the fact that the ministries of the fruit and vegetable industry for the republics and the main administrations for the central apparatus must investigate, on an urgent basis, the reasons for the low productivity of the orchards and vegetable plantations and to outline and implement specific measures for achieving the planned cropping power on an unconditional basis.

Subsequently the minister pointed to the unfavorable situation which has existed for many years with regard to the assortment of vegetables and fruit, a situation which precludes the possibility of satisfying the population's demand for these products and which adversely affects the work of the processing industry. In the structure of the vegetable raw materials being made available, tomatoes constitute 74 percent, cucumbers and green peas -- only 4 percent, cabbage and table beets -- 3 percent and eggplant and peppers -- only 0.4 percent. A similar situation exists in the case of fruit, with apples, mainly of the summer varieties, constituting 83 percent. Cherries, mazzard cherries and other stone fruit crops and also berries are being processed in very small volumes.

In the interest of obtaining a large amount of income, as a result of the high degree of profitability associated with fruit and berry wines, summer varieties of apples suitable only for wine-making have been planted in the orchards on an increasing basis. Under these conditions, the production of winter varieties suitable for storage and also stone fruit crops requiring large expenditures of manual labor is not only not being developed but in fact it is even being reduced in volume.

Nor is the situation any better in the case of the assortment of vegetables and fruit being sold in fresh form. It is only for a brief period of time that the branch is able to sell peppers and eggplant, berries and even apples to the population. Thus, in order to extend the period for selling these products, they must be imported and this is not always justified. A situation has developed wherein some vegetables, for example tomatoes, are produced in a large volume both for consumption in fresh form and for processing and still the demand is not being satisfied fully. And this is associated with the unjustified growing of non-seedling tomatoes over large areas. This leads to a reduction in the tomato harvesting period, overloading of the transport equipment and processing enterprises and in the final analysis it results in great losses and in incomplete satisfaction of the population's requirements for this product. The union ministry has repeatedly drawn the attention of the republic ministries to this fact and still no great advances have been achieved with regard to expanding the production of tomatoes based upon the use of seedlings. This situation must be corrected in a more rapid manner.

The ministries of the fruit and vegetable industry must carry out a great amount of work aimed at ensuring that the population is supplied with early vegetable products on a year-round basis. Here a special role must be played by hothouse vegetable production. Tremendous capital investments are being employed for developing this branch and the branch has a large number of winter hothouses at its disposal where it can and must obtain high and stable yields of vegetables and green crops. However, many problems concerned with the management of the hothouse economy are being resolved in a slow and insufficiently skilful manner. During the collegium the ministries of the fruit and vegetable industry for the Turkmen SSR, Armenian SSR and the Uzbek SSR were subjected to sharp criticism in this regard. Extremely low vegetable yields are being obtained from hothouses in these republics.

In the report, a great amount of attention was given to the problems concerned with the quality of the products being produced and delivered. It was noted that the work carried out in this regard had produced definite results. The quality of a majority of the types of products delivered to industrial centers throughout the country had improved. The quality of the cabbage, tomatoes, cucumbers and apples being received from farms in the Russian Federation had improved noticeably. The pip and stone fruit being received from the Moldavian SSR are of high quality. Fine onions are being shipped by the system's suppliers in the Kazakh and Kirghiz SSR's. Unfortunately, such results are not being obtained in all areas.

For a period of 3 years now, the Ministry of the Fruit and Vegetable Industry for the Uzbek SSR has been criticized for the low quality of its apples and grapes and yet their leaders give only assurances and fail to correct the



situation with regard to the quality of the products. Many complaints are being received regarding the quality of the cabbage, onions, tomatoes and grapes being shipped from the Turkmen SSR. The time is at hand for the leaders of the Ministry of the Fruit and Vegetable Industry for this republic to undertake the measures required to correct this situation.

There have been numerous instances of low quality potatoes, cabbage and pip and citrus fruit being received from the Georgian SSR. The quality of the cabbage being shipped from this republic is of the lowest grade. Such intolerable incidents can only disturb the leaders of the Ministry of the Fruit and Vegetable Industry for this republic.

A great amount of work is being carried out in the Azerbaijan SSR aimed at increasing the production, procurement and delivery volumes for cabbage, tomatoes, fruit and grapes for the all-union fund. However, proper attention is still not being given here to the problems associated with raising the quality of the products and expanding the assortment of vegetables.

The minister noted that the problems concerned with the quality of the products must be solved commencing with the selection of the varieties and the technology and agricultural practices employed in cultivating and harvesting the crop and also with observance of the rules for sorting and packing.

The minister stated that one of the principal reserves for improving the quality and assortment of the products is that of accelerating the introduction of such progressive operational methods as accepting the products at the sites and delivering them in accordance with the "field-to-store" program. In 1983 the ministry's procurement subunits accepted 31 percent of the overall product volumes directly on the farms and over the past 3 years the purchases in the production areas increased by a factor of 1.7. However the construction of sorting and acceptance points at the sovkhoses must be accelerated if all of the products are to be accepted on the farms. Whereas the principle of "field-to-store" and "field-to-plant" is being introduced in the case of product sales for local funds or for industrial processing, in the case of inter-republic deliveries it has for all practical purposes not been developed whatsoever.

Here a restraining factor is the stubborn refusal on the part of some ministries to accept responsibility for organizing this work. As a result and just as in the past, the organizations of Tsentsosyuz /USSR Central Union of Consumers' Societies/ serve as the mediator in the majority of instances between the sovkhoses of the Ministry of the Fruit and Vegetable Industry and the trade enterprises. This then explains the inter-departmental problems, the disruptions in the procurements and deliveries to the union fund and the low quality of the products. Serious claims in this regard have been addressed against the Ministry of the Fruit and Vegetable Industry for the Ukrainian SSR.

The operational experience of many agroindustrial associations and a number of ministries has shown that opportunities are available to them for developing their own procurement networks.

Successful solutions for the tasks associated with the production, assortment and quality of goods are determined to a considerable degree by the status of



affairs in seed production and nursery management. In 1983, for the country as a whole, 15 percent more seed for vegetable, melon and fodder root crops was purchased than was the case in 1982. According to N.T. Kozlov, this will make it possible for the most part to satisfy the seed requirements of kolkhozes, sovkhoses and the country's populations for this year's sowing campaign.

At the same time, last year's plan for seed purchases by sovkhoses throughout the system was not fulfilled. And the quality of this seed remains low.

Each year the seed sales plans of sovkhoses within the RSFSR Ministry of the Fruit and Vegetable Industry remain unfulfilled. The ministry's leadership must draw serious conclusions and undertake urgent measures in this regard. Experience has shown that as a rule fine results are obtained in those areas where the seed production operations are carried out by knowledgeable, industrious and energetic workers and where proper attention is being given to this problem. By way of an example, the minister cited the Krasnoye Pole Sovkhoz in Chelyabinsk Oblast. On this farm, which is located in a zone of so-called unstable seed production, the seed for cabbage, carrots, table beets, radishes, turnips and onions is being grown on more than 300 hectares and high yields are being obtained annually. In 1983 the following yields were obtained per hectare: seed for carrots -- 4.2 quintals, white-head cabbage -- 5.1, table beets -- 7.8, radishes -- 3.4 and turnips -- 3.3 quintals. The sovkhos is satisfying completely the oblast's requirements for vegetable crop seed. Concern is being displayed here for creating a base for seed production and for improving the organization and technology employed in the cultivation of seed.

If fine work had been performed by the 220 seed production farms in the Russian Federation which operate under more favorable soil-climatic conditions, then the republic's seed problem would not have arisen and there would have been no need for the remaining 600 farms to engage in the production of vegetable crop seed.

One urgent problem continues to be that of satisfying the requirements for planting stock. This applies in particular to the nonchernozem zone of the Russian Federation and the Turkmen SSR. However, just as in the past, the ministries of the fruit and vegetable industry for the union republics, Soyuzplodoprom and the Main Administration for Horticulture and Viticulture are not devoting proper attention to the development of nurseries or to improving the varietal structure or the quality of the planting stock.

Subsequently the minister discussed in detail a number of problems: the work of industry and trade, capital construction, logistical supply, transport, more efficient use of material and labor resources, strengthening of the branch's economy and implementing improvements in the organization of labor, the operational style and in the selection, placement and training of personnel.

At the conclusion of his report, N.T. Kozlov stated that the workers attached to the fruit and vegetable industry are devoting a maximum amount of effort towards successfully carrying out and over-fulfilling their plans and socialist obligations and that they are making a worthy contribution towards implementing the country's Food Program.

The following individuals participated in the debates which followed the report: the minister of the RSFSR fruit and vegetable industry V.I. Naumov, the chief of Glavmosplodoovoshchprom /Main Administration for the Fruit and Vegetable Industry of the Mosgorispolkom/ N.T. Seregin, minister of the fruit and vegetable industry for the Tajik SSR A.K. Anvarov, minister of the fruit and vegetable industry for the Belorussian SSR N.S. Yakushev, director of the Vilnyus Hothouse Combine of the Ministry of the Fruit and Vegetable Industry for the Lithuanian SSR Yu.G. Morkunas, minister of the fruit and vegetable industry for the Armenian SSR R.A. Sukhudyen and secretary to the Central Committee of the Professional Trade Union for Agricultural Workers P.T. Shevtsov.

The deputy chairman of the USSR Council of Ministers Z.N. Nuriyev participated in and delivered a speech before the Collegium.

The meeting of the Collegium was attended by many individuals: the deputy head of the Department of Agriculture and Food Industry of the CPSU Central Committee I.K. Kapustyan, the deputy chairman of the Committee for Problems of the Agroindustrial Complex of the Presidium of the USSR Council of Ministers, department head of the USSR Council of Ministers V.P. Borodin, head of a sector of the fruit and vegetable industry of the Department of Agriculture and Food Industry of the CPSU Central Committee D.I. Ivashchuk and executives of the USSR Council of Ministers, the USSR People's Control Committee, USSR Gosplan, the Central Committee of the Professional Trade Union for Agricultural Workers, the USSR State Committee for Science and Engineering, USSR Gossnab, USSR Ministry of Finances, USSR Ministry of Agriculture, USSR Ministry of Procurements, Tsentrosoyuz, USSR Ministry of Rural Construction, USSR Ministry of Railways, USSR Ministry of Civil Aviation, USSR Ministry of Machine Building for Light and Food Industry and Household Appliances, Goskomsel'khoshtekhnika, republic ministers for the fruit and vegetable industry, leaders of subunits of the central apparatus of the USSR Ministry of the Fruit and Vegetable Industry, general directors and the directors of subordinate enterprises and organizations of the union republic ministries of the fruit and vegetable industry.

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## LIVESTOCK

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### UTILIZING POTENTIAL OF RSFSR HOG RAISING SECTOR

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 4, Apr 84 pp 29-30

[Article by A. Panina, senior economist of the Main Planning-Economic Administration of the RSFSR MSKh [Agricultural Ministry]: "Every Hog Raising Farm Must Yield a Profit"]

[Text] Hog raising is the most rapidly maturing branch of meat livestock raising. In the RSFSR pork production occupies second place after beef production. In 1982 3.5 million tons of hogs in live weight were sold for meat. By 1990 pork production must increase to 5.2 million tons.

Unfortunately, the potential possibilities of this branch are still being used insufficiently. Thus, production output per head equals only 77 kilograms. The daily weight gain in young being fattened is 345 kilograms. Things are no better with regard to the return on feed. In 1982 kolkhozes and sovkhoses used 19.8 million tons of feed units for raising animals but produced only 2.2 million tons of pork.

If we consider that hog rations are 80-90 percent concentrates it becomes clear that the continued development of hog raising requires an increase in the expenditure of grain for forage purposes. This is why the efficient use of feed must be placed at the head of all economic work. What are the reasons for the over-expenditure of forage in hog raising? One of them is the poor work involving the reproduction of the herd. After all, the expenditure of feed depends on how intensively sows are used (Table 1).

Moreover, in eight oblasts production per sow equalled fewer than 10 piglets, feed expenditures equal 13.3 quintals of feed units and meat production per head equals only 49 kilograms. At the same time in six oblasts where output per sow equals over 16 piglets, the production of a quintal of pork required only 6.2 quintals of feed units, and 118 kilograms of meat are produced per hog.

Here is another example. In the kolkhozes and sovkhoses of Rostov Oblast 119,000 primary sows are maintained. In 1 year each one of them will give birth an average of 1.3 times. Consequently, this maternal herd did not participate in the reproduction of the herd for over 4 months per year and during this time about 67,000 tons of feed were expended for their upkeep.

Table 1

Piglets produced per sow, head	Number of krays, oblasts and ASSR's	Feed expenditure per quintal of weight gain, quintals of feed units	Pork production per head available at the start of the year, kg
Up to 11	13	12	55
11.1-12	8	9.4	68
12.1-13	15	8.5	77
13.1-14	10	8.2	85
Over 14	25	7.5	93

In Kursk Oblast each of 69,000 primary sows produced slightly over 9 piglets per year on the average. If the average republic indicator for progeny (12.5 head) were to be achieved here, 51,000 primary sows would be sufficient to achieve the same number of progeny. The "superfluous" 18,000 sows "ate" 29,000 tons of feed units per year.

What about violations in the organization of raising and fattening hogs? In November-December 1982 the enterprises of Kursk Oblast produced 77,000 piglets, and as of early 1983 there were 149,000 sows in the population of the maternal herd. In Rostov Oblast during the same period 194,000 piglets were born, but by the end of the year there were already 420,000 of them. Where did the "extra" piglets come from? Could this be an accounting error? No. The reasons have to do with an unsatisfactory upkeep of the herd of sows and with insufficient attention to the raising of young--piglets lag behind in development, by the age of 2 months they have not gained the minimal weight for transfer into an older age group and often remain with their mothers for 4 months. A similar situation develops in the group being raised prior to fattening. As an analysis shows, included here at the end of the year are piglets born as long ago as June which are not 7 months old. Things are no better with regard to the transfer of animals for fattening. The average daily weight gain in these groups equals 240-260 grams. Thus it turns out that in order to raise one hog weighing 100 kilograms no fewer than 500 days are needed. With an increase in the fattening schedule there is an increase in expenditures of labor and forage and pork production turns out to be unprofitable.

But why is this branch operating, gently stated, ineffectively in Rostov, Kursk, Volgograd, Orlov, Bryansk, Tambov and a number of other oblasts which traditionally have been involved in hog raising? The main reason for this is a passive attitude toward the matter on the part of specialists. For example, Neklinovskiy Rayon is considered the best in Rostov Oblast with regard to the organization of economic work. Meanwhile, in the 40 Let Oktyabrya Support-Demonstration Kolkhoz, where economists work on probation, hog-raising brings losses. This is not surprising--a sow produces 10 piglets and the average daily weight gain in piglets equals 176 grams. "Don't pay

Table 2

Rayon	Number of hogs, thousands	Average daily weight gain, grams	Cost of 1 quintal of weight gain, rubles	Feed expenditure per quintal of weight gain, quintals of feed units
Yegorlykskiy	26.7	118	363	19
Tselinskiy	31.1	97	356	23
Peschanokopskiy	50.6	122	322	16.5

special attention to this," the kolkhoz's economists reassure visitors. "The branch is not the main one here, it is working for itself." but the piglets are sold not only to kolkhoz farmers but to inter-farm enterprises as well. And then, since when has the size or purpose of a farm been justification of mismanagement? Evidently, for a long time, otherwise a situation would not have developed in which an extremely low level of hog raising characterizes entire regions in the oblast (Table 2).

In these regions it takes almost 3 years to raise a hog weighing 100 kilograms.

Among directors and specialists of local agricultural organs, kolkhozes and sovkhoses not only of Rostov but of other oblasts as well there is an idea still in circulation that non-specialized hog-raising farms cannot be highly productive. It is possible to produce pork only on large farms. It is the influence of this opinion that to a large extent explains the consequences of the restoration of small farms--on the one hand the sale of piglets to the population has increased; on the other, there has been a sharp deterioration in the branch's economic indicators. But the crux of the matter involves not opinions but mismanagement. This type of reasoning does not in any way correspond to the conclusions arising from the great amount of experience gathered in our country and abroad. Let us look at least at Vologda Oblast. Here 96 percent of enterprises involved in hog raising maintain 1,000 or fewer animals. Sows do not eat feed for free--they produce 18 piglets annually. The average daily weight gain of young animals is 453 grams. On the average per sow 118 kilograms of meat are produced with an expenditure of feed of only 6.2 quintals of feed units per quintal of weight gain. According to the indicators for hog raising, Vologda Oblast is at the same level as Leningrad, Moscow, Sverdlovsk, Gorkiy and Kemerovo oblasts, where a large part of the pork is produced in large industrial complexes.

Undoubtedly, the production of pork in complexes is more effective. But small farms also have their advantages. It is true that in them it is more complicated to decrease labor expenditures, but it is easier to organize the intensive utilization of sows in them and it is possible to more fully preserve suckling pigs. But the main thing is that it is not as difficult to supply the herd with feed produced by the farm itself, thereby replacing expensive concentrated feeds by mixed silage or other forage.



Small hog-raising farms will not lose their importance in the future as well especially since their proportion in hog production is still sufficiently high. The level of development of hog raising on them to a significant degree determines the status of the branch within the republic. This is why specialists of kolkhozes and sovkhozes involved in hog raising should carefully investigate the situation, analyze the reasons for lags, indicate measures to eliminate shortcomings in the reproduction and raising of hogs and establish controls over the efficient expenditure of feeds. Each hog raising farm must yield profits.

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## REGIONAL DEVELOPMENT

### INTENSIFICATION OF AGRICULTURAL PRODUCTION IN RSFSR

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 4, Apr 84 pp 2-4

[Article: "By the Course of Intensification (According to the Materials of the Expanded Collegium of the RSFSR Ministry of Agriculture)"]

[Text] Last year the kolkhozes and sovkhozes of the RSFSR took another step forward along the path of the intensification of agricultural production. Gross output worth 62 billion rubles, 3 billion rubles more than in 1982 and 5 billion rubles more than the average annual level of the 10th Five-Year Plan, was produced. The increase of these volumes was achieved, for the most part, by means of the increase of labor productivity. Each worker produced output worth 5,158 rubles, 17 percent more than during the last five-year plan.

The volumes of the production and procurement of all types of plant growing products increased substantially. The sale to the state of grain increased by 7.6 million tons, sugar beets--3.9 million tons, potatoes--1.3 million tons. Respectively 379,000 tons and 53,000 tons more vegetables and flax fiber were sold than in 1982.

The stock breeders of the republic made a significant contribution to the implementation of the Food Program. Having fulfilled the plan ahead of time, they sold to the state 864,000 tons more livestock and poultry, 2.7 million tons more milk, 905 million more eggs and 3,700 tons more wool than last year.

The changes in the economy are noticeable: the farms of the RSFSR derived a profit of more than 10 billion rubles as against last year's loss of 3.1 billion rubles. The level of profitability of kolkhoz production last year increased to 19.9 percent, sovkhoz production--20.8 percent.

The pace of the rebuilding of villages increased significantly. At kolkhozes and sovkhozes 11 million m<sup>2</sup> of housing were put into operation, 43 percent more than was put into operation at the end of the 10th Five-Year Plan. Schools for 117,000, preschool institutions for 81,000 and clubs and houses of culture for 89,000 were built, the length of intrafarm hard-surface roads increased by nearly 7,000 km.

This year even more important tasks face the workers of the villages. The plan on the majority of types of products is higher than the level achieved during the most favorable years. The sale to the state of grain, sugar beets,

sunflowers, potatoes and vegetables has to be increased significantly. The volumes of the procurement of meat should increase by 9 percent as against the 1983 level, milk--8 percent, wool--2 percent. As a whole the gross output of agriculture will exceed 65 billion rubles, which is 12 percent more than the average annual level of the first 3 years of the five-year plan.

The plan of this year is oriented to a much greater extent than before toward the increase of the efficiency of management, the increase of labor productivity and the saving of fuel, electric power and other resources. In short, the emphasis is being placed on the intensification of agricultural production, the efficient use of the created potential and the more complete return from the assets being invested.

The basis of all agronomic work is scientifically sound systems of farming. In the past 3 years they have been developed in all the autonomous republics, krais and oblasts. But this is too little. Systems of farming are needed first of all at the farms, where it is possible to obtain a high return from the assets being invested. Here the achievement of the envisaged yield of crops should serve as the main indicator.

The introduction of scientifically sound systems of farming is most closely connected with seed growing, for the improvement of which much, but far from enough has been done in the republic. Last year a third of the entire grain field was sown with low quality seeds. The proportion of substandard seeds of perennial grasses and flax was high. In a number of oblasts inadequate attention is being devoted to the enlargement of the areas under high quality plantings of potatoes. There are also unsolved questions in the organization of breeding work, strain renovation requires significant improvement.

The increase of the gross harvest of grain by nearly 24 million tons as compared with last year requires the complete utilization of all the reserves which are available at each kolkhoz and sovkhoz. First of all the structure of grain production has to be improved, having brought it as close as possible to the demands of the food industry and the needs of animal husbandry.

The increase of the yield of potatoes and the decrease of the losses when harvesting sugar beets are not less burning questions of today.

Last year the flax growers, who for the first time in many years fulfilled the plans of the sale of flax fiber to the state, achieved good results. Now the task is to firmly consolidate the achieved results and to turn over not less than 205,000 tons of this product.

In the republic there are many examples which confirm the great effectiveness of industrial technologies of the cultivation of agricultural crops. But as a whole for the RSFSR the proper return from their introduction still does not exist. There are several reasons here, and the main ones of them are the inadequate level of agricultural technology and the frequently unskilled use of fertilizers and herbicides. That is, the causes of small yields should be sought not in the technologies, but in the people who are responsible for their introduction.

In the set of measures, which are aimed at the intensification of agricultural production, an important role belongs to reclamation construction. Farms of Stavropol Kray, Moscow and Belgorod Oblasts, the Kabardino-Balkar and North Osetian Autonomous Republics are obtaining from reclaimed lands more than 50 quintals of fodder units per hectare. However, there are also such oblasts, in which the great potential means of reclamation are being used from from adequately. For example, in Orel, Kurgan and Orenburg Oblasts the irrigated hectare yields on the average a little more than 20 quintals of fodder units.

The causes of such a small yield are well known: the low level of agricultural technology, the thinning out of plantings of perennial grasses and the shortage of fertilizers. As the experience of many farms of Ivanovo and Tyumen Oblasts suggests, first of all the amounts of performance of soil improvement work should be increased sharply, natural fodder lands should be put in order, having created for this purpose specialized detachments and having furnished them with the necessary equipment.

As to the maximum increase of meat and milk production, here the basic means is the increase of the productivity of livestock and poultry.

In 1983 as compared with the preceding year the average daily weight gain of large-horned cattle in fattening increased for the republic by 17 g and came to 498 g. If we take specific oblasts, the difference in these indicators remains significant--from 642 g at the farms of Vladimir Oblast to 425 g in Kalinin Oblast.

Considerable reserves in the increase of meat and milk production lie in the more complete use of the capacities of stock breeding complexes. The experience of the leading farms of Altay Kray, Leningrad, Moscow, Vologda, Belgorod and other oblasts convinces us of this. Given the guaranteed supply of large-horned cattle with fodders and the proper care of animals they achieve an average daily weight gain of 800-1,000 g each, while consuming per quintal 6-7 quintals of fodder units.

In 1983 the stock breeders of the Yulduz Sovkhoz of Chistopolskiy Rayon of the Tatar ASSR sold to the state 1,629 tons of meat with a plan of 1,000 tons. The average weight of a delivered head of large-horned cattle is 411 kg, the average daily weight gain in fattening is 855 g.

How in such a case is one to evaluate the work of the managers and specialists of the Novozalegoshchenskiy Complex of Orel Oblast, the Krasnoyarsk Complex of Astrakhan Oblast and the Rakhinskiy Complex of Volgograd Oblast, where, while consuming per quintal of weight gain 10-12.5 quintals of fodder units of state fodders, they obtain only 400-500 g each per head and sell livestock with a live weight of less than 300 kg?

The capacities of the hog complexes in Ivanovo, Sverdlovsk, Rostov, Chelyabinsk, Belgorod and Pskov Oblasts and Maritime Kray are being used at the level of only 45-75 percent. More than 60 percent of the dairy complexes, whose period of assimilation has expired, are producing slightly more than half of the output envisaged by the plan. Moreover, a large number of complexes so far have not been supplied with the planned number of livestock. In Bryansk,

Novgorod and Pskov Oblasts they are 62-65 percent filled, in Orel, Yaroslavl and Perm Oblasts and Maritime Kray--75 percent. Meanwhile any irregularity in the work of dairy complexes should become the subject of a detailed examination by local agricultural organs in order to take the necessary steps.

The work of hog farms requires substantial improvement. The farms of Bryansk, Kaluga, Orel and other oblasts are obtaining an average daily weight gain in fattening of less than 300 g. The sale to the state of hogs with a live weight of less than 100 kg is being permitted by the kolkhozes and sovkhoses of Volgograd, Saratov, Orenburg and Amur Oblasts and the Bashkir ASSR.

There is an urgent need for the restoration of the groundlessly eliminated hog farms. Last year a third of the farms of the republic still did not have them, while in Kaluga, Kemerovo and Penza Oblasts half did not. When developing large hog raising complexes, under no circumstances should one reject small hog farms. They yield from them is quite high, if here one organizes the work in accordance with advanced technologies.

Today no one needs to prove the importance of breeding work with livestock. Precisely it helped the stock breeders of the Kryazh Sovkhoz of Volzhskiy Rayon of Kuybyshev Oblast to increase the average milk yield to 4,560 kg. In the past 5 years 90-94 calves have been obtained here per 100 cows. Last year the sovkhos sold to other farms 106 head of pedigreed calves. Meanwhile the productivity of cows at several pedigreed stock farms is lower than at ordinary farms. In 1983 in Lipetsk Oblast, for example, the average milk yield per cow came to 2,180 kg, while at the Palmo-Mikhaylovskiy Pedigreed Stock Plant it came to 2,139 kg.

The zootechnic service must carefully analyze the situation, which has formed at pedigreed stock farms, and correct it as quickly as possible.

The creation of a stable fodder base is a decisive condition in the matter of the intensification of animal husbandry. In the past 2 years fodder production has improved noticeably. Now as compared with last year it is necessary to increase the gross volume of fodders by 8-10 percent and to procure 44 million tons of hay, 43 million tons of haylage, 161 million tons of silage and 23 million tons of root crops.

The fulfillment of this task is possible primarily by means of the increase of the productivity of fodder lands, their efficient use and, what is very important, a high level of organization in the work.

Many farms from year to year are late in the starting of haying and carry it out in a month, or else more, instead of 10-12 days. As a result they lose the next crops and obtain low quality fodders. These shortcomings are especially visible in Kalinin, Yaroslavl, Perm and a number of other oblasts, where 36-60 percent of the hay is declared offstandard. Gross violations of the technologies of procurement and a wasteful attitude toward fodder production lead to the excessive consumption of fodders and the decrease of the productivity of animals. The task of agricultural organs and the managers and specialists of farms is to find reserves of the increase of fodder stocks, in order to enable the livestock sector to work more successfully.



Much has to be done on the increase of labor productivity and the acceleration of the rate of complete mechanization in farming and animal husbandry. Steps are being taken on the improvement and introduction of industrial technologies of the cultivation and harvesting of potatoes, vegetables and other agricultural crops. In this connection the experience of the cultivation of tomatoes in Astrakhan Oblast merits attention. This technology requires the minimum expenditures of manual labor and, moreover, it is possible to use it when cultivating row crops.

In recent years many livestock farms have been completely mechanized. The kolkhozes and sovkhozes of Leningrad, Moscow, Chelyabinsk and Sverdlovsk Oblasts, Krasnodar and Stavropol Kray and several others have achieved high indicators in this. In Leningrad Oblast, for example, the workload per operator comes on the average to 32 cows, there are 58 head of long-horned cattle per worker in animal husbandry.

This year the capital investments, which are being channeled into the strengthening of the material and technical base of agriculture, will come to 13.6 billion rubles. Everything necessary must be done so that each ruble spent on construction would yield a high return and would be repaid in full by products.

The task to achieve an above-plan increase of labor productivity by 1 percent and a decrease of the product cost in addition to the plan by 0.5 percent was set for all labor collectives by the December (1983) CPSU Central Committee Plenum. What do these figures mean for agriculture of the republic?

The increase of labor productivity by 1 percent will make it possible to decrease the number of workers by 82,000, to save 151 million rubles of wages and to increase the volume of gross output by 451 million rubles. While by means of the decrease of expenditures by 0.5 percent it is possible to save material, manpower and financial resources in the amount of about 300 million rubles, more than 100,000 tons of petroleum products, 800,000 tons of fodder units and a large amount of electric power, coal and natural gas. The councils of agro-industrial associations should take under control the fulfillment of these most important assignments of the party and ensure extensive publicity in the competition of collectives.

An important condition of the above-plan decrease of the product cost and the increase of labor productivity is internal cost accounting. Now it is being used extensively at many farms of Leningrad, Kaliningrad, Sverdlovsk and Novgorod Oblasts, Stavropol Kray and the Tatar ASSR. But in Ivanovo Oblast only 15 percent of the farms are using it, in Buryatia--13 percent, in the Moldavian ASSR--8 percent, in Dagestan--only 3 percent.

The economic services should ensure the introduction of internal cost accounting in all the subdivisions. Here they should not only report the assignments to them in good time, but also establish monthly checking of fulfillment, organize the tallying of the results and specify the steps of the moral and material stimulation of the workers.

In the increase of the economic efficiency of production an important role belongs to the brigade contract. In 1983 more than 81,000 brigades, links and

farms worked in accordance with the new form of the organization and remuneration of labor. The indicators of these collectives, as a rule, are higher than those of others. But there are also autonomous republics, krays and oblasts, in which the previously formed links and brigades, which do not work on orders, have collapsed. Most often this is due to the failure of the managers and specialists of the farms to observe contractual obligations. People and attached equipment have been diverted "to the side," the proper conditions for work have not been created.

It is necessary to eliminate without delay the shortcomings in the labor of contracting collectives. The extensive training of the members of such collectives, the managers and specialists of farms and the workers of agricultural organs in the methods of work on a contract must be organized. Constant concern about the links and brigades, which do not work on an order, their supply with equipment, seed, fertilizers and other physical assets and the extensive teaching of the methods of work in the new way are a guarantee of success.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

### PROGRESS IN SPARE PARTS PRODUCTION FOR AGRICULTURAL MACHINERY

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 25 Mar 84 p 2

/Interview with V. Yanitskiy, member of the Board of the USSR Ministry of Tractor and Agricultural Machine Building and chief of the Production Administration by Ye. Bakhanov; date and place not specified/

/Text/ The field workers in our country have at their disposal approximately 3 million tractors and millions of other agricultural machines and units. This entire tremendous arsenal of equipment must be at the readiness line by the commencement of spring field operations. Here success is dependent to a decisive degree upon timely deliveries of spare parts. Our correspondent Ye. Bakhanov held a discussion with member of the Board of the USSR Ministry of Tractor and Agricultural Machine Building and chief of the Production Administration V. Yanitskiy, in an effort to learn exactly how this task is being solved by the ministry's collectives.

/Question/ Vladimir Vladislavovich, Minsel'khosmash /USSR Ministry of Tractor and Agricultural Machine Building/ is producing almost two thirds of the spare parts for the tractors and agricultural machines. Meanwhile, during the first part of January the ministry's board discussed the 1983 results and noted that the lag in the production of these parts constitutes one of the principal shortcomings of the industrial associations and enterprises. What are the causes of this situation?

/Answer/ It bears mentioning that the 1983 plan for the production of spare parts for sel'khoztekhnika was considerably higher than that for the previous year. Nevertheless, it was fulfilled by more than 30.2 million rubles worth in terms of overall volume. But in the process the branch undersupplied the rural areas in terms of 24 types of spare parts called for in the state plan.

If I was to state that we received assistance from allied workers and builders in disrupting the planned tasks, then my words would be viewed as an attempt to hide behind a screen of "objective" causes. Without taking into account the difficulties associated with material resources and the placing in operation of capabilities, it must be recognized that to a considerable degree the non-fulfillment of the production plan for spare parts, in terms of nomenclature, resulted from the fact that the complex of measures developed by the ministry's all-union industrial associations contained weak "links."

Serious attention is now being given to these weak "links." At the same time, one cannot help but notice the progress that has already been achieved in this area. Indeed, last year the number of items on the spare parts list for tractors which were undersupplied decreased by a factor of 2.5 compared to the previous year. Unfortunately, the situation has still not been corrected completely.

/Question/ What conclusions did the branch's staff draw from an analysis of the causes of last year's falling behind and what measures are planned for eliminating them?

/Answer/ During a discussion held in January and February of this year on the production of spare parts, the ministry's board concentrated attention primarily on our internal shortcomings and unused potential. In particular, monthly tasks were approved for the production of spare parts. The plans for measures which will ensure their unconditional fulfillment were requested from the VPO and the production associations and plants. Daily accounting procedures were introduced into operations. Control over the approved schedules is being carried out with the aid of an EVM /electronic computer/.

A new and more efficient system for intra-branch cooperative deliveries has been developed and placed in operation. Measures are being employed aimed at introducing more progressive technologies into operations. The ministry has requested the appropriate organs to increase the funds for certain types of semi-finished products and completion items and to exert an influence on those partners of ours which are under no obligation.

/Question/ For an extended period of time the collectives at the Chelyabinsk and Vladimir tractor plants, the Kharkov Tractor Engine Plant and the Tula Combine Plant have been obligated to the field workers in terms of spare parts. Has the ministry found the "medicine" to counter this chronic "ailment" of these enterprises and is there any hope of their rapid "recovery"?

/Answer/ We truly had such enterprises. During a thorough study of the production of spare parts, the board concentrated its attention on precisely these plants. For example, let us take the Chelyabinsk Tractor Plant.

This enterprise is operating under special controls at the present time. Recently, new production capabilities were placed in operation there. The collectives of enterprises at Orel, Rubtsovsk, Cheboksary, Dzhambul and Pavlodar provided the Chelyabinsk workers with assistance in producing a number of spare parts. At the ChTZ /Chelyabinsk Tractor Plant/, start-up and adjustment work on new equipment has been partially completed.

Prior to this spring and summer's field operations, the ministry, using funds for the 1st quarter, must supply 101 types of spare parts for tractors and 38 for agricultural machines, ahead of schedule by 20 March and using funds for the 1st six months -- also ahead of schedule by 20 June. During the first 6 months we must produce 500 sets of gears for the DT-75MV tractor and in addition to the annual plan we must produce 950 tractor engines and 57 types of spare parts for tractors and 28 for agricultural machines.

It is a pleasure for me to report that the first goal has already been achieved successfully. The quarterly delivery of spare parts for tractors and agricultural machines was completed by 20 March in terms of the entire established nomenclature. Moreover, the planned task was exceeded for practically each item.

We will obviously exercise firm control over the production of spare parts in the future. But the branch's workers are quite justified in expecting to receive support from our partners -- mainly the enterprises of USSR Minchermet /Ministry of Ferrous Metallurgy/, Minavtoprom /Ministry of the Automotive Industry/ and Minelektrotekhprom /Ministry of the Electrical Equipment Industry/.

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IMPORTANCE OF RELIABLE, EFFECTIVE AGRICULTURAL EQUIPMENT EMPHASIZED

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 4, Apr 84 pp 36-43

/Article by A. Yezhevskiy, Minister of Tractor and Agricultural Machine Building: "Reliable and Effective Equipment for the Food Program"/

/Text/ A most important condition for implementing the Food Program of the USSR is that of achieving a sharp improvement in the technical level of agricultural production based upon supplying it with highly effective equipment. Agricultural machine building is providing a stronger technical foundation for industrialization of the rural areas and mechanization of the principal production processes. Moreover, the supplying of agricultural with modern equipment is also important from the standpoint of solving a great social task -- that of gradually eliminating the substantial differences which exist between the cities and rural areas.

The great amount of work carried out following the March (1965) Plenum of the CPSU Central Committee in connection with the development of tractor and agricultural machine building has made it possible to increase the deliveries of machines and equipment to the kolkhozes and sovkhozes, to improve the quality of the machine-tractor pool and to raise by more than threefold the power-worker ratio of agricultural labor. During the last 3 years of the 11th Five-Year Plan alone, agriculture was supplied with 927,000 tractors, 331,000 grain harvesting combines and more than 7 billion rubles worth of other agricultural machines.

However, notwithstanding the fact that a new and large step was taken towards strengthening the logistical base of the kolkhozes and sovkhozes, their requirements for highly productive equipment are still not being satisfied fully. The amount of power on the farms per 100 hectares of sowing area is still 320 horsepower and for one worker -- 28.3 horsepower. According to estimates by specialists, these indicators should be at least doubled if the agricultural operations are to be carried out during the optimum periods. Today the expenditures of live labor in the rural areas is extremely high: approximately 350 production operations are being carried out manually, involving work by 16 million individuals. Only 60 percent of the types of machines required for all-round mechanization of the technological processes in farming are to be found on the farms. A large number of obsolete machines are still being used in production.

This is why the branch of tractor and agricultural machine building has been assigned the following task -- to almost double the scientific-technical potential compared to the level already achieved. This task is set forth in the decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Measures for Further Raising the Technical Level and the Quality of Machines and Equipment for Agriculture, Improving Their Use and Increasing Their Production and Deliveries in 1983-1990." The decree contains a complete program for the comprehensive and primarily high quality development of tractor and agricultural machine building. It calls for the following:

...the implementation of a planned conversion over to the production and deliveries of systems and sets of machines and technological lines which will ensure the all-round mechanization of the principal and auxiliary operations, the introduction of industrial technologies and a maximum reduction in losses in agricultural output;

...the development of designs and mastering of the production of new, modernized and highly effective equipment, in conformity with the "system of machines for the all-round mechanization of agricultural production";

...during the 1983-1985 period, to improve considerably the technical-economic indicators of the machines and equipment, raise their reliability and service life, productivity, the durability of the parts and units, to lower the material-intensiveness and energy consumption and to improve maintainability through the creation and development of high quality new items of equipment and also through the modernization of machines and equipment already produced;

...during the 1986-1990 period, to achieve a further and considerable increase in the technical level and quality of the machines and equipment and in the deliveries to agriculture, in the nomenclature, sets and quantities required for completing the all-round mechanization of agricultural production, thus making it possible to carry out the work during the best agrotechnical periods and to reduce sharply the labor expenditures in agriculture.

In conformity with these tasks, programs have been approved and are being carried out which call for growth in the productivity of the principal machine-tractor units by a factor of 1.3-1.5, improvements in their power ratings, an increase in the service life of engines and the principal units of tractors up to capital repair of from 5,000-6,000 to 8,000-10,000 motor-hours, an increase in the coefficient of readiness of agricultural machines up to 0.95-0.98 and the creation of more comfortable working conditions on the machines for the machine operators. The plans call for a substantial increase in the technical-economic indicators of the machines and equipment, particularly with regard to their reliability and maintainability, material-intensiveness and energy consumption. For example, the specific material-intensiveness of all-purpose row-crop tractors will be lowered to 30-45 kilograms per liter of force and in general purpose caterpillar tractors -- to 42-55 kilograms per liter of force, compared to 41-51 and 62-80 kilograms per liter of force at the present time. The specific fuel consumption for tractor and combine engines will not exceed 175 grams per liter of force per hour and oil consumption -- 0.3-0.4 percent of the overall quantity of fuel consumed. At the present time, these indicators amount respectively to 180-185 grams per liter of force per hour and 0.7-0.8 percent. A considerable increase is taking place in the daily productivity of

the tractors, grain harvesting, potato harvesting and beet harvesting combines and cotton harvesting machines.. In the process, a reduction will take place in the specific consumption of diesel fuel and expenditures for equipment maintenance per standard hectare.

The decree mentioned above calls for a broad complex of organizational and economic measures for the strong development of domestic tractor and agricultural machine building, the importance of which is difficult to exaggerate.

During the 1983-1990 period, a production potential must be created which will guarantee satisfaction of the agricultural requirements for machines and equipment of a high technical level. Towards this end, the plans call for the complete technical re-equipping and modernization of 147 plants and the construction of 19 new enterprises. The newly created capabilities will be supplied with modern equipment and a progressive technology. These agricultural machine building projects will be considered as construction projects of special state importance. During 1984 alone, the volume of capital investments allocated to the branch will be increased by 23.6 percent above the 1983 level and compared to its level for 1981 -- by 41 percent.

A number of other important measures are being carried out which are of considerable importance with regard to carrying out the decree. Works concerned with the study and creation of new types of tractors and agricultural machines and the modernization of existing ones have been included in 62 branch special purpose all-round programs and 49 programs of the USSR State Committee for Science and Engineering and USSR Gosplan, all of which encompass an entire cycle of operations from scientific works to the mastering of production capabilities and series production.

Minsel'khoz mash /Ministry of Tractor and Agricultural Machine Building/ has prepared a plan for developing and mastering the production of all new and modernized machines. An organization-developer has been established for each item of equipment and for the carrying out of preliminary studies -- an appropriate NII /scientific research institute/, the schedules for and the personal responsibility of specific executive agents have been established -- from a researcher to the leader of an enterprise, VPO or ministry. The course of fulfillment of these special purpose all-round programs is reviewed monthly during meetings of the board of Minsel'khoz mash.

With regard to new tractor equipment, the efforts of the designers are presently concentrated on raising the power ratings of the tractors, creating highly standardized families of them and also specialized tractors for work in hothouses, on slopes and on tea, cotton and grape plantations, improving fuel economies by increasing the use of engines with turbo-supercharging and intermediate cooling and also by lowering the labor intensiveness of technical services.

The use of hydraulic drives in tractors is increasing. All-purpose regulators for attached systems are making it possible to raise the productivity of plowing units and to lower fuel consumption. Considerable results are expected from the use of new designs for hydraulic steering control for wheeled tractors. One task of the tractor builders consists of ensuring that the numerous

requirements being imposed with regard to this equipment are satisfied by a limited number of standard units and models. On the whole, this is being done today.

At the Kharkov Tractor Plant, an increase is taking place in the production of the powerful T-150 caterpillar tractor, the technical-economic indicators of which are better by a factor of 1.5-2 than the indicators for the previous model; it is also superior to similar foreign types in terms of its all-purpose nature and operating equipment. In 1983 the obsolete T-74 tractor, which had been employed for more than two decades, was removed from production operations. At another leading enterprise -- the Volgograd Tractor Plant -- preparations are being made for producing the new, highly productive and powerful DT-175 tractor. The GSKB /state special design office/ of the Minsk Tractor Plant is completing the development of a design for an all-purpose row crop tractor with a 150 horsepower engine.

Coincidental with the production of powerful tractors, the branch is confronted by an important task -- to equip these powerful machines with sets of modern attached and towed implements, in the interest of raising labor productivity considerably in agricultural production. Thus special attention is being given to increasing the production capabilities for supplying a grouping of machines for the K-700 and T-150 type tractors. For this current five-year plan, the plans call for the placing in operation of new capabilities at the Tselinogradsel'mash Production Association and also at such plants as Altaysel'mash, Belinskisel'mash and the Odessa imeni Oktyabr'skaya Revolyutsiya and others.

The grouping of technical items of equipment for the K-700 and T-150 type tractors will be increased to 112 items, with the production of 101 of them being carried out at enterprises of agricultural machine building. Eight types have already been produced as the initial industrial series and preparations are being made for the production of 49 more types. The branch's design organizations have designed 10 types of new machines and 34 more types are in various stages of development. All of these machines are to be used mainly for carrying out new technological operations (subsoiling, protecting the soils from erosion, tilling solonchets soils, local applications of fertilizer and so forth). They will replace completely those models of machines which do not meet the modern requirements.

For the purpose of employing soil-protective farming technologies, the sweeps being produced today will be replaced by more improved non-ganging implements having a swath width of 10 or more meters. The plans call for the series production of new non-mouldboard implements, including chisel plows. The tilling of soil using these implements is making it possible to eliminate the excessive packing down of arable and sub-soil layers and it is reducing fuel consumption considerably. In 1983, tests were carried out on an experimental batch of chisel plows. The farmers remained satisfied with them. The series production of such plows will commence in 1985.

Non-ganging cultivators with swath widths of 12 and 18 meters have been developed and are being prepared for series production. They will replace the KPS-4 cultivator, which is in use at the present time, the ganging of which with a tractor requires special hitches. The use of non-ganging cultivators

will raise their productivity by 25-30 percent and reduce the labor expenditures required for converting the units over from the working position to the transport position by a factor of almost 10. The hydraulic units of the new machine enable a machine operator to convert the cultivator over to its transport position very easily and without having to leave the cabin of the tractor.

In the near future the branch's enterprises will commence the production of new wide swath non-ganging seed and fertilizer drills and stubble field sowing machine-cultivators, the use of which, compared to machines ganged to a tractor with the aid of special hitches, will make it possible to raise their productivity by 20-30 percent and reduce the labor expenditures required for converting the units over from the working position to the transport position by a factor of 5-7. The sowing machines will be equipped with hydraulic systems for controlling the working organs, signalization systems, systems for monitoring the course of the technological process, units which make it possible for one man to convert the machines over to the transport position and hoppers with increased capacities so as to decrease idle time during the loading of seed.

The pool of sweeps, deep ripper-fertilizers, cultivators and harrows will be renewed substantially prior to 1985. At the present time, the Tselinograd-sel'mash Production Association is preparing to produce an improved model of the KTS-10 cultivator, which operates in tandem with a K-701 tractor and which is used for the pre-sowing cultivation of soil with retention of stubble and the Altaysel'mash Plant -- BMSH-15 and BMSH-20 wide-swath harrow-hoes for powerful tractors.

A considerable increase will take place in the production of machines for applying mineral fertilizers; these machines will have a cargo carrying capability of 8-10 tons and a productivity that is 50-70 percent higher than that of machines in use at the present time. The plans call for the production of machines having a cargo carrying capability of 16 tons.

Today the pool of plows consists mainly of 4 and 5-body attached and 5 and 6-body semi-attached implements. During the 11th Five-Year Plan, a considerable increase will take place in the production of 9-body general purpose plows and 7-body plows with hydraulic protectors for work on rocky soils and ganged with a K-701 tractor. Work is being carried out in connection with raising the technical level and quality of the plows being produced.

The use of powerful tractors equipped with the required groupings of machines will make it possible to bring about radical changes in the technology for field operations. For example, multiple-unit machines for preparing the soil and carrying out the sowing work during just one run will make it possible to carry out several operations, as a result of which labor productivity will be raised sharply.

The implementation of the mentioned measures will make it possible to satisfy completely the agricultural requirements for groupings of machines for the powerful tractors. By the end of the 11th Five-Year Plan, the production volume for these machines will have increased by 1.9, during the 12th Five-



Year Plan the pool of machines for ensuring the introduction of industrial technologies will increase by a factor of almost 2.5 and the machines and mechanisms for preparing and applying mineral fertilizers -- by a factor of more than five.

The branch will be confronted by an equally important task -- carrying out modernization work, raising the technical level and reliability of combines now in production and in 1986 commencing the mass production of new and highly productive grain harvesting combines. In this regard, the flagship of domestic combine construction -- the Yu.V. Andropov Rostsel'mash Association -- has been tasked with developing the Don family of combines, with a delivery capacity of 6-6.5 and 7-8 kilograms of grain bulk per second. Such machines have already been created and they are undergoing testing in various soil-climatic zones of the country. The Don combines are equipped with harvesters having swath widths of 5, 6, 7 and 8.6 meters and a hopper capacity of 6 cubic meters. The comfortable cabin is equipped with an electronic control-warning system for signalization and for monitoring the crop harvesting technological process.

In 1983, comparative tests were carried out on the new combine against a number of foreign models and domestic machines. The Don combines produced fine results in terms of their delivery capacity and nominal productivity, non-crushing of the grain and the completeness of the harvesting work per hectare. For example, during testing carried out at the North Caucasus Machine Testing Station, the delivery capacities of the Don-1500 and Don-1200 combines were 8.7 and 6.9 kilograms per second respectively, compared to the Niva combine -- only 5.5 kilograms per second. Moreover, the crushing of grain during the harvesting work was lower than the standard by a factor of 1.6 and did not exceed the established norms.

The Don combines are very general-purpose in nature and can be employed for harvesting various crops. Modifications of their basic model are being developed for harvesting grain crops on steep slopes and castor oil beans and also for use in the nonchernozem zone. In addition, attachments are being developed for these combines for use in harvesting corn, sunflowers, soybeans and other crops. Today the preparations for producing these machines have become truly national in scope. More than 450 enterprises of 30 different departments and ministries are carrying out tense work in connection with the creation of new types of materials, technological rigging, automatic and mechanized lines, robots and manipulators, new machine tools and other specialized equipment used in the production of combines of the Don family. The workers and specialists in all areas are displaying an awareness of the importance attached to the carrying out of this important state task.

In addition to the Don machines, still another innovation is being prepared for the agricultural machine operators -- a rotary type combine with a delivery capacity of 10-12 kilograms of grain bulk per second. The modernization of combines which are still being used in production is continuing. Thus active work is being carried out in connection with the production of modernized Kolos, Niva and Yenisey combines, with single circuit speed regulators for the undercarriage drive and improved axles for the drive wheels. The modernized models will have raised engine power ratings and high operational productivity. Measures have been undertaken to raise the reliability of the harvesting portion of the combines, the threshers and the hydraulic systems and better working

conditions have been created in the cabins for the machine operators -- in particular, tinted glass windshields and ventilation units of raised productivity.

At the same time, Minsel'khoz mash is carrying out work in connection with the creation of a towed grain harvesting combine, the experimental models of which will undergo testing in 1984-1985. The production of such machines will make it possible to use a portion of the ever increasing pool of powerful tractors directly for harvesting the crops.

Grain cleaning units and eight types of complexes having a productivity of 10 and 40 tons per hour are being produced for the post-harvest processing of grain. Modern cleaning units and all-purpose lines with a productivity up to 100 tons per hour have also been created.

For their work in creating and introducing into agricultural production machines and equipment for the all-round mechanization of grain processing at kolkhozes and sovkhozes and also for developing and introducing into mass production operations tractor and combine diesels of raised power ratings and improved economic operations, and with effective gas-turbine supercharger systems, a large group of workers, scientists, engineers and specialists attached to the branch was awarded the State Prize of the USSR for 1983.

In conformity with the tasks confronting the branch, work is being carried out in connection with creating carrot harvesting complexes, potato harvesting combines and other machines. The introduction of a complex -- an MMT-1 carrot-harvesting machine and a sorting-cleaning line -- will make it possible to reduce labor expenditures and product losses, compared to the indicators for manual harvesting, by factors of 2.5-5 and 5-10 respectively.

The use of a flow line technology, based upon all-round mechanization for potato production and compared to the traditional technology, will make it possible to reduce labor expenditures by a factor of almost six. Combines are now harvesting approximately 40 percent of the public sowings of potatoes and in conformity with the Food Program it is expected that eventually they will harvest 80 percent of the area. This will make it possible to obtain 2.6 million additional tons of potatoes in 1990.

The development of the new 4-row KSK-4-1 self-propelled potato harvesting combine has been completed and it has been assigned to production. The use of this combine will raise labor productivity in the harvesting of potatoes by a factor of 2-3 and lower fuel consumption by a factor of 1.5-2 compared to these indicators for the 2-row combine (which also is undergoing constant improvement). The improvements introduced into the design of the new machines will promote a twofold reduction in mechanical damage to the tubers and, it follows, in their waste products during storage. Stationary potato sorting points with productivities of 25 and 50 tons per hour are being created.

Based upon the increasing requirements for light mechanization equipment, required for carrying out work on private plots, animal husbandry farms, hothouses, hotbeds and gardens, the "machine systems for the all-round mechanization of agricultural production" now include motorized units with power ratings of 5-7 horsepower, a set of 13 types of agricultural implements for it and a small wheeled 10-12 horsepower tractor with a set of nine types of

implements. The plan for the development of new types of industrial products for 1984 called for the production of 7,000 motorized units with a set of agricultural machines at the Kutais Plant for Motorized Units and at the Minsk Tractor Plant.

Just as in the past, an important problem continues to be that of providing the consumers with complete support in the form of spare parts for their tractors and agricultural machines. The task consists of reaching a production level for spare parts which will fully promote the scientifically sound norms for their consumption. Exceptional importance is being attached to finding a solution for this problem. The 1983 task for producing spare parts for tractors and agricultural machines was fulfilled; 4 percent more were produced than during the previous year. During the 1st quarter of this current year, agriculture was supplied with spare parts in an amount constituting 25 percent of the delivery plan for them.

At the same time, one cannot help but be alarmed over the fact that, in addition to raising the reliability and durability of the machines and units being produced, the production plan for spare parts (per 100 machines in the pool) is decreasing somewhat. Nor does this apply only to spare parts. The rapid increase in the mass production of modernized and new types of combines, tractors and agricultural machines requires that a more thrifty attitude be displayed with regard to their use. In this regard, one particular phenomenon is deserving of mention -- the premature writing off of equipment. At times it is caused by a low degree of expertise on the part of the machine operators or by insufficient production capability of the repair enterprise and also by the fact that today the machine operators for one reason or another wish to operate only new equipment.

Finally, it should be borne in mind that as growth takes place in the power ratings of the machines, sharp increases will also be noted in the losses which occur when these machines lie idle. Thus the new and highly productive equipment which is now being delivered and which will continue to be delivered to the kolkhozes and sovkhoses in future years requires considerable improvements in the level of its use.

In order to carry out these tense tasks within the established periods, Minsel'khormash must achieve a sharp acceleration in the work being performed by the scientific-research, planning-design and technological organizations and ensure that improved results are realized from such work. At the present time, with the active support of the USSR State Committee for Science and Engineering, the reorganization of these organizations is nearing completion. In the interest of concentrating the scientific forces on solving the more important tasks concerned with developing the branch, seven scientific-technical centers have been created. Sixty organizations and KB's /design offices/, including such large institutes as NATI /State All-Union Scientific Research Institute of Tractors/, VISKHOM /All-Union Scientific Research Institute of Agricultural Machinery/ and NIITraktorosel'khormash /Scientific Research Institute of Tractor and Agricultural Machinery-Manufacturing Technology/ are concentrated at these centers.

The scientific research and experimental design work carried out at these scientific-technical centers is directed mainly towards creating the more

important complexes and sets of highly productive machines and equipment for the energy-conserving, soil-protective and industrial technologies used for cultivating agricultural crops in the various soil-climatic zones of the country; carrying out research work in connection with creating new machines and equipment for the cultivation and harvesting of agricultural crops, which will ensure the carrying out of several technological operations during just one pass; raising the fertility of the soil and reducing product losses. In the process, special attention is being given to improving the quality, durability and maintainability of the machines and their principal parts, units and assemblies.

The scientific-research institutes and the branch's design offices must develop and turn over to production an average of not less than 80 new or modernized machines. And this means that the rates for creating such equipment, compared to the rates for the past five-year plan, must be raised twofold. A substantial reserve for successfully solving this difficult task -- further standardization of models and particularly more extensive use of the principles of modular design. Today from 10 to 25 percent of the parts and units for agricultural machines are standard. Work is being carried out aimed at creating such conditions under which the designers will not have to spend time developing standard parts and units, or the workers in experimental departments -- in producing them. The first part of the task has already been solved: the specialists have been supplied with the required normative-technical documentation, including albums of working drawings. A system of centralized support is now being formed for supplying the required general purpose units and parts for the production of experimental models of the machines.

Solutions are being found for the problems concerned with introducing SAPR's /sistema avtomatizirovannogo proyektirovaniya; automatic planning system/ into operations. The logistical base for such systems consists of highly productive EVM's /electronic computers/, which are available at the scientific-technical centers and design organizations of the branch, automated working areas of the designers and at information-computer complexes. In addition to accelerating the creation of new machines, the use of SAPR's will also make it possible to raise sharply the scientific-technical level for their development. The plan called for a substantial expansion in interaction between the branch's design office and scientific research institute with the scientific organizations of USSR Minsel'khoz /Ministry of Agriculture/, Goskomsel'khoztekhnika USSR, the union and republic academies of sciences, USSR Minchermet /Ministry of Ferrous Metallurgy/, USSR Minneftekhimprom /Ministry of the Petroleum Refining and Petrochemical Industry/, USSR Minelektrotekhprom /Ministry of the Electrical Equipment Industry/ and other ministries participating in the creation of agricultural equipment. The plans also call for further development of collaboration with CEMA member states.

Existing practice has shown that very little time is available for the testing of experimental models of machines: for all practical purposes, this time is limited to the busy harvest period -- 3-4 weeks. If no progress is realized, then it becomes necessary to wait until next year. As a result, the process of creating and working out new machines quite often drags out for several years. Meanwhile, a real opportunity exists for shortening the periods for developing equipment by at least twofold, mainly through the extensive introduction of accelerated testing on benches and at proving grounds.

A program has been prepared within the branch for the development of experimental bases which involves almost 80 organizations and enterprises. In various zones throughout the country, support points are being created for the NATI and VISKhOM institutes for the testing of tractors and agricultural machines. At the same time, the plans call for the construction and modernization of 92 engineering-laboratory and testing-experimental bases of design and technological organizations.

One of the principal trends in the intensification of the process of creating new equipment -- a thorough structural and organizational reorganization of engineering forces, carried out in the branch in organic combination with increased material incentives for the specialists who created the equipment. The position of designer of the highest category has been introduced at the enterprises, personal bonuses are being added to wages for individuals who improved their skills, bonuses are being issued for developing the more important objects in accordance with special purpose branch programs, certain rights are being expanded and an increase is taking place in the responsibility of the general and chief designers not only for the creation of the machines but also for exercising author's supervision over the course of their production and also operation. The lump wage payment system has proven its worth. Its use is making it possible to concentrate the efforts of the designers and technologists on the more important sectors and to complete the work more rapidly and in a high quality manner. In 1984 a number of the branch's leading collectives joined in carrying out an experiment concerned with improving the wages of specialists; the experiment commenced recently at enterprises in Leningrad. Its essence, as is well known, consists of carrying out the tasks concerned with new equipment using fewer resources, in a high quality manner and on schedule.

At the same time, in the interest of raising the economic interest of the collectives of design and planning-technological organizations and enterprises, with regard to carrying out work aimed at raising the technical level, quality and reliability of serially produced agricultural equipment, incentive bonuses have been introduced for adding on to the wholesale prices for this equipment. They have been established in the amount of up to 10 percent of these prices for increasing the service life of the equipment up to the capital repair period, for raising the coefficient of readiness and for lowering the norm for the expenditure of spare parts compared to that set forth in the normative-technical documentation. The plans call for one half of the profit obtained by means of bonuses to be used for the formation of economic incentive funds and the remaining portion -- mainly for supplementing the resources in the fund for the development of science and engineering. Confidence is being expressed in the fact that the planned measures for economic influence will furnish definite results during the current five-year plan.

However, the development of a design and the production of an experimental model, even a very successful one -- constitute only one half of the problem. The second half -- mastering the series production of the new equipment. These two parts of the same process are mutually and closely associated with one another. A general plan has been developed for mastering the new machines and developing their production capabilities. Within a certain period of time, it must merge the tasks concerned with preparing production at the manufacturing plants with the programs for capital construction and the introduction of a progressive technology.



For the purpose of raising the interest of the collectives in constantly renewing their products, the question concerning the introduction of an indicator that will be mandatory for the enterprises -- the proportion of new equipment in the overall production volume -- is being worked out. The plans call for growth in this indicator to be stimulated through a system of preferential normative deductions from profit obtained as a result of the sale of serially developed new machines.

At the same time, the organizational and economic measures will not produce the results expected unless success is achieved in changing the nature of production itself and making it more amenable to constantly renewing the products being produced.

The task has been assigned -- in connection with the production of light series of products -- to depart from the use of strict production programs and, based upon the use of progressive equipment, to form so-called flexible technological lines which will make it possible to reorganize production for the manufacturing of other products rapidly and without great expenditures. Departments and enterprises for the manufacturing of small series of agricultural machines are being created based upon this principle.

A program is being implemented for satisfying the branch's requirements for instruments and technological rigging of all degrees of complexity, based upon the development of and improvements in the use of the capabilities for tool and instrument production. A new specialized scientific-production association for industrial operations has been created.

The allied ministries are tasked with ensuring the creation, production and delivery of component parts to the tractor and agricultural machine building branch. Unfortunately, many problems which fall within the competence of certain ministries and allied departments are still awaiting a solution for this task. In particular, the use of plastic for certain parts and structures has made it possible to realize an economy in terms of many thousands of tons of metal and to lower the weight of agricultural equipment. However the Ministry of the Chemical Industry is still not supplying plastic materials possessing the required properties or in the required amounts. The technical level and quality of tires being produced by enterprises of Minneftekhimprom for tractors and agricultural machines continue to remain low. This same ministry is not ensuring the deliveries of armored collars produced from fluorine-containing rubber or window and door sealing materials for cabins. In addition, the production of conveyor belts with a polyvinylchloride covering has not been mastered.

True, some positive advances have been noted recently in solving these problems.

The branch's scientists and designers, jointly with workers attached to the scientific-research organizations of USSR Minsel'khoz' and USSR Minchermet, are carrying out work aimed at improving the quality and searching for new materials of a raised durability. In 1981-1982, experimental batches of mouldboards were produced using triple-layer steel of a raised durability. The test results confirmed the promising nature of this particular trend. The hope exists that USSR Minchermet will accelerate the development of rolled triple-layer steel and during the next few years satisfy completely the requirements for such steel by agricultural machine building.

The branch's workers have adopted the decisions handed down during the November (1982) and subsequent plenums of the CPSU Central Committee as a strong program for action. The socialist competition for providing agriculture with modern and highly productive equipment under the slogan "The Food Program Requires High Quality, Reliable and Effective Equipment" has been launched on an extensive scale among the labor collectives. This movement, which has been approved by the CPSU Central Committee, was initiated by the collectives of the production associations Minsk Tractor Plant imeni V.I. Lenin and Tselinogradsel'mash. The agricultural workers have responded very positively with regard to the output of these enterprises. Socialist obligations have been adopted, the implementation of which will make it possible to reduce considerably the schedules for work being carried out using equipment produced by these associations and they will also reduce the material and energy expenditures required for the operation of the machines and increase their service life.

For example, the socialist obligations of the collective of Minsk tractor builders called for an increase of up to 9,000 motor hours in the motor potential of tractors by 1985 and by 1990 -- up to 10,000 motor hours. In addition, during the 11th and 12th five-year plans the machines of all models must be produced with the State Badge of Quality and the production of Belarus' MTZ-0.5 motorized units must be raised to 20,000-25,000 units by 1990. The labor collective of the Tselinogradsel'mash Production Association has undertaken the obligation of raising the service life of the machines being produced and this will be equivalent to supplying agriculture with 16,000 additional units.

Raising the quality of the products is a problem of special importance. Practically all of the collectives of the branch's enterprises are participating in the socialist competition for raising the quality of the products being produced. For example, the Kharkov tractor builders have adopted and are successfully carrying out obligations aimed at raising the technical level of the T-150K tractors by 1985 and increasing their motor potential to 7,000 motor hours, which will be equivalent to supplying 4,500 additional tractors. The workers at the Volgograd Tractor Plant imeni F.E. Dzerzhinskiy Production Association have undertaken the obligation of developing and introducing a complex of measures for raising the technical level, quality and reliability of the DT-75M tractors, which will serve to increase their motor potential from 6,000 to 8,000 motor hours.

In developing the initiative of industrial enterprises, the VISKhOM Scientific Production Association concluded an agreement with them calling for scientific-technical and creative collaboration, directed towards accelerating the schedules for developing and mastering the production of no less than 20 items of agricultural equipment, raising the technical level and quality of more than 100 types of machines being produced and improving considerably the working conditions of the machine operators.

The party has assigned a high value to the initiative displayed by the Dnepropetrovsk Combine Plant imeni K.Ye. Voroshilov, with regard to the certification of working positions based upon scientific organization of labor. In 1983 the proportion of high quality products being produced at the plant

amounted to more than 82.5 percent and exceeded the average branch level by a factor of 3.1. During 3 years of the current five-year plan, the output production volume increased by 28 percent and the entire increase was achieved by raising labor productivity. The losses in working time were lower than the average branch level by a factor of 4.5. The rhythmic nature of the production operations is close to a unit.

The ministry, the production associations and the branch's enterprises, in conformity with the November (1982) and December (1983) plenums of the CPSU Central Committee, associate the work of improving the quality of the agricultural equipment directly with achieving improvements in administration, ensuring efficient and harmonious work in each labor collective and strengthening discipline, organizational ability and order in production operations.

Active work is being carried out at all enterprises of tractor and agricultural machine building in connection with strengthening labor, planning-economic and technological discipline. First of all, measures are being undertaken aimed at creating the logistical and organizational conditions required for rhythmical and highly productive work by the labor collectives, for the efficient carrying out of contractual obligations and for raising responsibility for assigned tasks, on the part of each worker and engineer right up to the leadership of the ministry.

Similar to all Soviet people, the branch's workers have registered their warm approval of the speech delivered by the General Secretary of the CPSU Central Committee Comrade K.U. Chernenko during the special February Plenum of the CPSU Central Committee and before the voters. In response to the party's appeal, the branch's collectives launched a movement to adopt raised socialist obligations for 1984, to achieve above-plan growth in labor productivity of 1 percent and to lower output production costs by 0.5 percent in excess of the plan. A great amount of attention is also being given in all areas to organizing measures aimed at raising the coefficient of shift usage of equipment, rapidly achieving the planned labor intensiveness for output and improving the quality of the goods for the population.

The workers attached to all enterprises and organizations of tractor and agricultural machine building are constantly linking their practical work to the tasks of the Food Program and are striving to ensure its consistent implementation. Having commenced a new year of the 11th Five-Year Plan, the collectives are striving to make a maximum contribution towards carrying out the grandiose tasks advanced by our party.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

### BRIEFS

HIGH QUALITY EQUIPMENT--An expanded meeting of the Board of the USSR Ministry of Tractor and Agricultural Machinery was held in Moscow for the purpose of discussing the tasks confronting the branch's workers, as a result of the decisions handed down during the April (1984) Plenum of the CPSU Central Committee and the speech delivered before the Plenum by Comrade K.U. Chernenko. In the report delivered by the minister A. Yezhevskiy and also in the speeches, special attention was given to raising the technical level and quality of the machines and equipment. As is known, in March of this year the Politburo of the CPSU Central Committee underscored the serious shortcomings existing in this work. The board outlined measures for eliminating these shortcomings and for providing immediate support for the rural areas in the form of machines for soil-protective and industrial technologies. /by Ye. Bakhanov/ /Text/ /Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 May 84 p 2/ 7026

EQUIPMENT PRODUCTION PLANNING--In light of the decisions handed down during the December (1983) and February (1984) plenums of the CPSU Central Committee, the problem of further improving the work of the production services of enterprises of the USSR Ministry of Tractor and Agricultural Machine Building is being discussed at a branch conference which convened in Tashkent on 6 April. Leading workers of the ministry, associations and the country's agricultural machine building plants are participating in the work of this conference. A report was delivered by the deputy minister for tractor and agricultural machine building in the USSR V.I. Chernov. Those participating in the conference are focusing their attention on the problems concerned with operational production planning, the carrying out of contractual obligations, the introduction of the brigade method of labor organization, the rapid development of new equipment for agriculture, improving the quality of this equipment and lowering production costs. /Text/ /Tashkent PRAVDA VOSTOKA in Russian 7 Apr 84 p 1/ 7026

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## TILLING AND CROPPING TECHNOLOGY

### REPORT FROM CONFERENCE ON PLANT PROTECTION

Moscow ZASHCHITA RASTENIY in Russian No 2, Feb 84 pp 2-4

[Article: "For Work on Plant Protection--Comprehensiveness, Organization and a High Degree of Effectiveness"]

[Text] At the end of 1983 management workers of the republic's association of Sel'khozkhimiya [Agricultural Chemical Association] and the directors and deputy directors of oblast, kray and republic plant protection stations--120 persons in all--completed a course at the Higher School of Agricultural Management.

The studies followed a special learning plan. The following topics were studied: questions related to the economic strategies of the party in developing agriculture and to the basic directions for implementing the USSR Food Program; the organizational-economic problems of agricultural development; the management of scientific-technical progress in agriculture; the organization of agricultural management; the organization of management of operations related to protecting plants from pests, diseases and weeds; the organization of administrative personnel; social psychology and teaching in managing the labor collective; and the legal aspects of management.

Considerable attention was given to problems of organizing and planning operations, of standardizing and reimbursing labor, to technology and the effectiveness of special measures; to agrotechnical, biological, chemical and other methods; to the introduction into production of comprehensive systems for protecting the basic agricultural crops; to the diagnosis and ecology of pests and disease agents, prognoses for their multiplication, to an automated management system, to methods for calculating weed infestation and to mapping fields according to foreign experience--machine systems on plant protection and others.

Lectures and reports were presented to the students by, in addition to the professorial-teaching staff of the Moscow Agricultural Academy imeni K. A. Timiryazev, by the chairman of the All-Union Production-Scientific Association on Agrochemical Services to Agriculture, N. F. Tatarchuk, by deputy chairmen V. I. Martynenko and V. I. Zakharov, by VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin] corresponding member K. V. Novozhilov, by professors I. Ya. Polyakov, V. A. Zakharenko and A. Ye. Chumakov and others.



At the end of the course there was a scientific-practical conference on the theme, "Ways to Improve the Operations of the Plant Protection Service and its Role in the Implementation of the Food Program." Participating in the work of the conference was the USSR Minister of Agriculture, V. K. Mesyats, instructor in the Department of Agriculture and the Food Industry of the CPSU Central Committee, N. V. Goncharik, the director of the Main Administration of Cadres of the USSR MSKh [Ministry of Agriculture], D. A. Yesipenko, the director of the Main Administration for the Organization, Standardization and Reimbursement of Labor of the USSR MSKh, V. N. Zhurikov, the first deputy chairman of the association Soyuzsel'khozkhimiya [All-Union Agricultural Chemical Association], A. M. Artyushin, the deputy chairman of the association, V. I. Martynenko, the director of the planning-economic administration, L. A. Dudoladov, the rector of TSKhA [Timiryazev Agricultural Academy], VASKhNIL academician M. I. Sinyukov, the rector of the Higher School of Agricultural Management, N. A. Botolov, and vice-rector M. Ya. Busurgin.

Reports were presented at the conference by S. F. Golovko (Stavropol Station for Plant Protection)--"The Role of the Plant Protection Service in Implementing Measures to Combat Pests, Diseases and Weeds," by A. S. Yegorenko (Minsk Station for Plant Protection)--"The Future Development of Plant Protection in Minsk Oblast," by Yu. B. Nesterov (Uzsel'khozkhimiya [Uzbek Agricultural Chemical Association])--"Ways to Improve the Plant Protection Service," by O. N. Prokof'yev (Kazakh Station for Plant Protection)--"Problems in Organizing Plant Protection," by M. P. Balin'sh (Latvian Station for Plant Protection)--"The Organization of Plant Protection in Latvia," by N. Sh. Salpagarov (Kirghizsel'khozkhimiya [Kirghiz Agricultural Chemical Association])--"The Status of Equipment Supplies for Plant Protection," by M. A. Urmanchiyev (Checheno-Ingush Association of Sel'khozkhimiya)--"Improving Measures and Introducing Comprehensive Systems for Plant Protection," and by A. T. Berezkin (Gorkiy association of Sel'khozkhimiya)--"On Strengthening the Rayon Service Link."

The students warmly thanked the professorial-teaching staff of the Higher School of Management and the USSR Minister of Agriculture, V. K. Mesyats, for good course organization and for the attention given to the directors of plant protection services on the part of the USSR MSKh and the rectors.

A lengthy speech was presented at the conference by the USSR Minister of Agriculture, Valentin Karpovich Mesyats. He discussed in detail the goals in the area of agriculture established at the May 1982 Plenum of the CPSU Central Committee, ways to implement the country's Food Program and the work of the APK [Agricultural Industrial Complex] and its subdivisions. V. K. Mesyats emphasized that a great deal remains to be done in order to achieve stability in production output within farming and livestock raising and in order to make agriculture less dependent on the caprices of nature. The main way to do this is further intensification on the basis of complex mechanization, chemization and reclamation.

Zonal systems of agriculture have been developed and are being introduced. They call for the assimilation of crop rotations, the efficient structure of sowing area, industrial seed farming, new varieties and hybrids, industrial

technology, progressive forms of organizing and reimbursing labor, the effective use of reclaimed lands and the extensive introduction of the achievements of science and progressive experience.

V. K. Mesyats emphasized that without widespread chemization of agriculture and without the efficient and effective use of fertilizers and pesticides it would be impossible to move to the planned level of agricultural production. The minister noted that the state service for plant protection makes an important contribution to the fulfillment of the Food Program.

It is comprised of 15 republic administrations, 154 oblast (kray, ASSR) stations, 1,869 rayon and inter-rayon stations, 1,518 signal and prognosis points, 166 prognosis laboratories, 108 control-toxicological laboratories, 42 phytohelminthological laboratories and 1,380 biological laboratories and factories. There are over 17,000 people working in the state service. Enterprises have almost the same number of specialists of the same profile. In kolkhozes and sovkhozes the struggle to combat pests, diseases and weeds is being implemented by over 50,000 specialized brigades and links.

In 1983 the struggle with pests and diseases was conducted on 95.5 million hectares (of these, biological means were used on 19 million hectares); herbicides were used on 71 million hectares, defoliants and dissipation--on 5 million hectares. Of 171.5 million hectares on 21 million (13 percent) the plant protection work was carried out by detachments from Sel'khozkhimiya.

V. K. Mesyats noted that he could cite many examples characterizing the contribution of the plant protection service. According to preliminary data, in 1983 19 million tons of grain, 14 million tons of sugar beets, 2 million tons of cotton raw materials and 17 million tons of potatoes, vegetables and fruit worth over 8 billion rubles were preserved from losses using expenditures of 1.5 billion rubles. Comprehensive systems for protecting basic agricultural crops were widely introduced. In the RSFSR alone their economic effectiveness totalled over 1.3 billion rubles. Plant protection operations were implemented on almost 8 million hectares where agricultural crops are cultivated according to industrial technology.

Considerable attention was given to the introduction of progressive technology, which enabled us to sharply curtail the expenditure of pesticides and other material-technical resources--low volume and ultra-low volume sprayers, belt conveyor application of preparations, regional and breeding-ground treatments, the joint use of fertilizers and pesticides and others.

The biological method has been widely practiced in the country. In the Uzbek SSR alone its use has increased from 447,200 hectares in 1976 to 3.2 million hectares in 1983. The proportion of this method in the total volume of work to combat cotton pests increased from 6.5 percent in 1976 to 40 percent in 1983. The expenditure of highly toxic pesticides decreased by almost 50 percent during this period, and expenditures for combatting cotton pests decreased from 24.6 to 18.9 rubles.

Among the new directions being developed in plant protection is the use of sexual pheromones. The use of pheromone traps enables us to determine the most effective times for chemical treatment or even whether to cancel treatments. The effectiveness of the struggle increases by 20-30 percent in this case. In 1983 the plant protection service organized the centralized delivery of 600,000 traps to enterprises.

We should mention the positive experience of centralized disinfection of seed in the Baltic States and the Kirghiz. It is no accident that covered smut has practically been eliminated here. The increase in grain yield is 2-3 quintals per hectare. In a number of oblasts of the RSFSR, the Belorussian SSR and the Baltic republics an automated system is being introduced to indicate the time potato crops are treated against late blight.

However, emphasized V. K. Mesyats, there are serious shortcomings in the work of the plant protection service. In recent years in a number of regions of the country there has been an increase in the infection rate of grain crops with covered smut. The situation is particularly unfavorable in the central oblasts of the RSFSR. The largest quantity of grain infected with smut came from the enterprises of Penza, Kursk, Voronezh, Orlov, Tula, Ryazan, Saratov and Lipetsk oblasts and the Mordovian ASSR. This is the fault primarily of the plant protection service. It should also be said that in kolkhozes, sovkhozes and rayon organizations attention has weakened to the important measures of disinfecting seed. New technologies for disinfecting seed material are being developed slowly. It is essential to focus the most serious attention on smut; it has no place in the fields! There should be a more widespread transition to the centralized disinfection of seed. Good results have been obtained from the use of film-forming disinfectants.

The number of cinch bugs and their harmfulness to wheat are increasing in Krasnodar and Stavropol krais, Rostov Oblast, the Dagestan ASSR, the Checheno-Ingush ASSR, and Volgograd, Saratov, Voronezh and Orenburg oblasts. The plant protection service has weakened its attention to locusts. As a result in several of regions of Uzbekistan and Southern Kazakhstan their number is increasing. Evidently, the elimination of counter-locust expeditions was premature.

The Colorado potato beetle continues to spread. Due to the absence of a reliable prognosis the multiplication of the meadow moths in Western Siberia was "overlooked."

V. K. Mesyats also noted that plant protection specialists are not controlling the use of pesticides and adherence to rules sufficiently. Orders lacking foundation are still being made for preparations without a consideration of how long they can be stored and without precise calculations of true needs. As a result, in a number of republics thousands of tons of preparations have accumulated which can no longer be used. This is pure mismanagement. The time has come to solve the problem of coordinating the efforts of scientific collectives for plant protection to deal with basic problems within the branch. This is not facilitated by their subordination to various departments. The work of the plant protection service must be evaluated not by the number of hectares treated with pesticides but by the preservation of

products. The fewer the chemical resources that must be used for the dependable protection of the harvest, the better.

In 1984, emphasized V. K. Mesyats, it is planned to implement special operations on a significantly larger area than in 1983; this refers primarily to expanding the use of herbicides. Special attention should be given to protecting grain crops, especially from smut, root rots, pentatomids, grain carabids, cutworms and mouselike rodents. It is essential to take effective measures to combat pests and diseases in potatoes--from the Colorado potato beetle and late blight, in sugar beets, cotton, fruit crops and vineyards.

V. K. Mesyats responded to the questions of the audience. He emphasized that it is essential to strengthen the rayon link of the service, which must organize and control the implementation of protective work in enterprises. In all enterprises, especially those with intensive farming, there should be agronomists specializing in plant protection. The ministry issued instructions on the introduction of such positions (within the limits of state numbers of specialists). The mechanized detachments of Sel'khozkhimiya must give priority help to economically weak enterprises which do not have the corresponding technology for implementing work to combat pests, diseases and weeds. More attention must be given to the introduction of integrated systems; chemical and biological resources for plant protection and equipment should be used efficiently, effectively and with the greatest return. In the struggle with harmful objects it is essential above all to utilize organizational-economic measures, agrotechnology, resistant varieties, biological methods and chemical resources only on the basis of a careful examination of fields and crops and with a consideration of the criteria for the number of harmful and useful types.

V. K. Mesyats noted that the proposals made by the directors of plant protection services with regard to improving the work of the service and to increasing its role in producing a full weight harvest, in the reimbursement of labor and in providing bonuses for specialists will be examined in detail. It is planned to discuss the problem of improving the work of the plant protection service at a board meeting of the USSR MSKh.

8228

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## TILLING AND CROPPING TECHNOLOGY

### COMBATTING PLANT DISEASES IN THE NON-CHERNOZEM ZONE

UDC 632.9.91

#### Expenditures for Crop Protection Will Be Reimbursed

Sverdlovsk URAL'SKIYE NIVY in Russian No 4, Apr 84 p 26

[Article by V. Kotova, senior scientific worker of the VNII [All-Union Scientific Research Institute] of Plant Protection: "Expenditures for Protection Will Be Reimbursed"]

[Text] In the eastern region of the RSFSR's Non-Chernozem Zone snow mould, root rot of mixed etiology, smut, brown rot of rye, crown rust of oats, helminthosporiosis leaf blight of barley and diseases of the seed (fusarial wilt, mould) are widespread on grain crops. The oat nematode is bringing harm to wheat, barley and oats. The underproduction of the harvest as a result of the complex of harmful types comprises 15-20 percent and more.

A warm and prolonged fall with an oversaturation of the soil on some fields create the prerequisites for the unfavorable overwintering of winter crops, particularly those that became overly dry as the result of an early sowing schedule. If by late December there is a small snow cover over unfrozen ground winter rye, which is sown on large areas in Perm and other crop-rotation oblasts of the RSFSR, will be in danger of greater manifestations of infectious (snow mould, root rot) and non-infectious (water rot, rot) diseases.

The great harmfulness of rot in winter crops is related to the negative effects of unfavorable soil-climatic conditions as well as to the infection of weakened plants with pathogenic microorganisms that have adapted to active development under snow and in early spring. The struggle against infectious rot is difficult because the infection is retained in the soil, where it is hardly accessible to direct action by active counter-methods. In order to decrease the harmfulness of rotting of winter crops in the spring it is essential to take measures that will accelerate the disappearance of snow and the early resumption of the plant's vegetation. With this goal it is possible to mulch snow with peat crust, humus or phosphorus meal, which decreases the time it takes snow to disappear by 8-10 days. It is essential to carry out early spring top-dressing with nitrogen and other fertilizers on thawing soil with subsequent harrowing. This increases the resistance



of winter crops to diseases and pests and improves the aeration regimen of the soil. On plots with a depressed contour it is expedient to remove standing water and water from melting snow.

In order to protect spring crops (wheat, barley, oats) from a complex of diseases (moulding of seed, smut, root rot, blight) it is essential to sow healthy high-quality seed that must be disinfected. The pre-sowing disinfection of the seed of grain crops secures an average 15-25 percent increase in productivity (2-5 quintals per hectare and more). Expenditures are reimbursed by a factor of 3-5.

In the northeastern regions (Perm, Sverdlovsk and other oblasts) during years with a long drawn-out cold spring and an over-saturation of the soil the period from sowing to shoot formation is more drawn out. The prolongation of the period from sowing to shoot formation sharply increases the sensitivity of seed to moulding and of the newly-formed roots--to infection with various pathogenic organisms. Under such conditions when sowing non-disinfected seed we observe a sharp fall in field shoot formation and in the density of the crop stand as well as the infection of crops with smut, root rot and other diseases.

In order to disinfect seed the most promising disinfectants are vitabaks, vitabaks-tiuram, fundazol, PKhNB, pentatiuram and geksatiuram used in a dose of 2-3 kilograms per ton of grain. It is expedient to treat sowing material infected with powdery mildew (stands planted for seed) with vitavaks and fundazol. Geksatiuram (2 kilograms per ton) should be used as a disinfectant in those regions where shoots of spring crops are greatly infected with root rot and infested with soil pests.

The intensive manifestation of various diseases in spring grains during the vegetative period is based mainly on the cultivation of unresistant varieties and on the non-adherence to the technology for raising the crops. For this reason the carrying out of all technological methods related to soil cultivation, sowing and crop care significantly improves the phytosanitary condition of crops and secures an increase in productivity. With the goal of decreasing losses from root rot and other diseases, the proportion of grain crops in specialized grain crop rotations should not exceed 50-60 percent.

The complex of grain pests in this zone has a pre-threshold harmfulness. The carrying-out of special chemical measures is expedient only during years in which a short-term multiplication of individual pests (stem fleas, plant lice) is observed and when the timely struggle against them is profitable.

The greatest harm to pulse crops (peas, vetch) is brought about by root rots and ascochyta leaf blight. Since the proportion of pulse crops in field crop rotations does not usually exceed 10-12 percent, the distribution of these crops in crop rotations with rotations of long duration and non-infected predecessors facilitates a limitation in the development of soil pathogens--agents of root rot and an increase in crop productivity. Pulse crops should be provided with balanced doses of organic (10 tons per hectare) and mineral

(N30P60K60) fertilizers, which activate the antagonistic activity of saprophytic microorganisms and which raise the disease-resistance and productivity of crops. The complex disinfection of peas and vetch seed with preparations of TMTD, fentiuram (3 kilograms per ton) or fundazol (3 kilograms per tons) with ammonium molybdate (400-500 grams per tons), by increasing field shoot formation and by securing the protection of shoots from root rot facilitates an increase in the harvest of grain and green mass by 20-25 percent (2-5 quintals per hectare). Here there is a sharp increase in the nitrogen-fixation capabilities of plants and in the accumulation of biological nitrogen in the soil.

In order to increase the productivity of perennial pulse crops it is essential to foresee the carrying out of protective measures against a complex of pests and diseases. Their implementation must take into account the economic thresholds of damage of leading harmful objects. For the Non-Chernozem Zone it is recommended to utilize the following indicators of thresholds: sitona--12 per square meter and sweet-clover weevils--15 per square meter. A consideration of the critical threshold level for pests enables us to curtail the use of chemicals by 30-50 percent. In the struggle against sweet-clover weevils and other pests which numerically exceed threshold harmfulness during the phase of bud formation, chlorophos (1.0 kilograms per hectare) or volaton (2 kilograms per hectare) should be used as disinfection agents.

In the struggle against diseases it is mandatory to disinfect sowing material with preparations of TMTD or fentiuram (3-4 kilograms per ton) in a complex with ammonium molybdate (200 grams per ton) and to observe the technology of crop cultivation.

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#### Combatting Black Smut of Barley

Moscow ZASHCHITA RASTENIY in Russian No 8, Aug 83 p 26

[Article by L. R. Tyulina, docent at the Kirov SKhI [Agricultural Institute] and A. I. Mal'tseva, senior scientific worker of the Northeastern NIISKh [Scientific Research Institute of Agriculture]: "The Struggle Against Black Smut of Barley"]

[Excerpts] In examining barley crops in Gorkiy and Kirov oblasts and in the Mordovian and Chuvash autonomous republics the agent of black loose or false smut, *Ustilago nigra*, was discovered. It was found together with *U. nuda*--the agent of loose smut. External differences in infections with these types manifested themselves poorly, which hindered their visual differentiation.

Black powdery smut was noted on almost all barley varieties cultivated in this region--Moskovskiy-121, Chernigovskiy-7, Union, Suvenir, Al'za and Kazanskiy 6/4.

Barley spikes infected with black smut form ears later than healthy plants do. All parts of the blossoms are transformed into a black sporous fungal mass. In addition to the obvious losses manifested in the number of damaged

ears, the pathogen results in hidden losses which are based on a decrease in shoot formation from seed, in the productive bushiness of a plant and in a decreased fullness of the grain.

This can be explained by the meteorological conditions of the second-fourth years, favorable for the growth and development of barley, which stimulated a compensatory capability in diseased plants and which had a positive effect on the development of the harvest.

The agent of black smut infects barley during the phase of germination. The fungus does not cause an internal infection in seed and for this reason combatting it is easier than combatting powdery smut. The chemical disinfection of seed secures the protection of barley from infection with growing spores at the very beginning of the growth and development of plants. For this reason black smut is found only in those enterprises where seed is not disinfected or is poorly disinfected.

Fungicides destroy the agent's spores, which are located on the surface of the seed, and at the same time facilitate an increase in germination and shoot-formation energy as well as increased resistance to the pathogenic fungus. Granozan yields good results in the struggle against black powdery smut.

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#### Provocation Method

Moscow ZASHCHITA RASTENIY in Russian No 12, Dec 83 pp 13-14

[Article by P. A. Aleksandrov, director of the Inspectorate of the State Committee on Variety Testing of Agricultural Crops in Vologda Oblast: "The Provocation Method"]

[Excerpts] Under conditions of a moist climate in the Non-Chernozem Zone the frit fly multiplies in significant quantities during some years. Varieties of spring grains not affected by it still do not exist, but there are some which are relatively resistant. Thus, at the Vologda Variety Plot in 1980 the Falenskaya and Lenmira spring wheat varieties were not affected by the frit fly whereas Ruso and Velorusskaya-12 were 30-34 percent infested.

Plants can "escape" hidden stem pests if crops are disinfected early and if weather conditions do not facilitate disinfection. In such years the provocation method--sowing on a delayed schedule--is used to determine the resistance of spring grain varieties to this group of insects.

Thus, the provocation method (late sowing schedule) enables us to differentiate between varieties of oats and barley with regard to resistance to the frit

fly and to more completely study them during the initial years of testing, thereby curtailing the evaluation period.

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## TILLING AND CROPPING TECHNOLOGY

### GRAIN PRODUCTION PROBLEMS IN KRASNODAR KRAY

Moscow PRAVDA in Russian 29 Apr 84 p 2

[Article by K. Aksenov, Krasnodar Kray: "The Ear Will Be Imbued With Strength"]

[Text] Brigade leader of the 40 Let Oktyabrya Kolkhoz of Dinskiy Rayon, L. Putilin, could not tear his eyes away from the grain that is increasing in strength.

"The crops are probably better than last year's," noted Leonid Ivanovich.

Last year an average of 50 quintals of wheat were produced here--the largest result produced in the enterprise. All grain was accepted at elevators as strong and valuable wheat.

"It has become law here to fulfill the state plan with high-quality grain," says the senior agronomist of the kolkhoz, I. Nerushay. "The quotas for 3 years related to the sale of strong wheat have been overfulfilled by a factor of 1.5."

A harvest of winter crops is being formed now according to a precise program recommended by specialists and scientists. Fields with the best predecessors--perennial grasses and pulse crops--are allocated for the Bezostaya-1 and Partizanka varieties. First class seed was sown together with fertilizer application. All winter contract brigades have nursed winter crops. Chemical weeding occurred on schedule and shoots were top-dressed. A "winged" partner--pilot for agricultural aviation, Hero of Socialist Labor A. Kulakov--has helped grain farmers in this work.

In a season farmers will cultivate winter crops several times, including by means of non-radical top-dressing. In other words, there are many concerns. Considerable effort is now required for sorting prior to unloading grain in elevators. Are expenditures reimbursed? Kolkhoz economists have calculated that operations carried out on every hectare especially in order to produce strong wheat cost 14 rubles 17 kopecks, and bonuses for grain quality--over 100 rubles. Not accidentally the profitability of the "wheat shop" equals 87 percent in the enterprise.



Under complex weather conditions of the past year the Kolkhoz 40 Let Oktyabrya produced 48 quintals of winter crops per hectare. Today it is planned not only to increase productivity but to increase the proportion of strong grain as well. For many years the administrative chairman, A. Malyshko, has been keeping a special journal, including in it observations, calculations and the results of experiments that involve the production of high-quality grain. A system of bonuses for kolkhoz farmers employed here increases their interest.

A considerable amount of experience in cultivating wheat with high bread-baking qualities has been amassed in the Kuban'. Whereas in the beginning of the Ninth Five-Year Plan only 3-5 percent of winter wheat sold to the state met the requirements for strong and valuable wheat, during the 10th over 11 million tons of such grain, or over three-fourths of the total, was sold. It is noteworthy that of the 3.2 million tons of wheat delivered in 1978 not a single quintal was evaluated as "regular." In 5 years the kray's enterprises were paid an additional 137 million rubles for quality, four times more than in the preceding five-year plan.

It would seem that by means of an improvement in quality it is possible to achieve a further growth in the effectiveness of the agricultural shop. However, many positions have been wasted. On the average during the last 3 years 2.5 times less strong grain has been delivered than during the 10th Five-Year Plan. Supplements decreased by about 10 million rubles annually.

In explaining the reasons for the lags, some blame everything on the weather. Strong winds, drought or rains during the threshing period did create obstacles. But working under the same sky, as they say, the farmers of Timashevskiy, Primorsko-Akhtarskiy, Novokubanskiy and other rayons delivered 94-97 percent of their grain with a high gluten content. There are many enterprises that deliver only strong and valuable wheat. Work is proceeding particularly precisely in places where the contract method has been assimilated.

There is no doubt that it is not easy to raise strong wheat in some zones of the Kuban'. Only a strict adherence to the complex of agricultural methods, material stimulation and the demandingness of specialists will result in success. But in many enterprises all of this is lacking.

The fields of Kanevskiy and Pavlovskiy rayons border each other. Natural-climatic conditions are approximately equal. The fertile chernozems are experiencing a shortage of moisture. But one is seeking out reserves for increasing the production of high quality wheat; the other--reasons to explain disruptions.

More than once I have seen how persistently and responsibly farmers fight, and there is no better word than this, for each kilogram of grain that is characterized by high bread-baking qualities. In Kanevskiy Rayon links take over the care of fields of winter crops beginning in the fall, implement agrotechnical measures on schedule and do not tolerate losses during harvesting and threshing, during cleaning on threshing floors and during transporta-

tion. It can be said that strong wheat is prized more than gold. In 3 years the rayon, the largest supplier of wheat in the kray, delivered 445,000 tons, of which 7 percent was placed in the "regular" category.

What about the neighbors? There underproduction equalled almost one-third of the state quota. Even that which was unloaded is not characterized by high quality. They say that the weather is at fault. Little strong wheat is submitted by the enterprises of Kushchevskiy, Beloglinskiy and Krylovskiy rayons. Leningradskiy, Tikhoretskiy and Novopokrovskiy rayons have retreated from positions they had won.

What are the reasons for this? This was heatedly discussed recently at a meeting of the buro of the party kray committee. An investigation revealed serious violations in the work of the agricultural administration of the kray executive committee and of numerous partners of agriculture, especially Sel'khozkhimiya [Agricultural Chemical Association] and the administrations of grain products and procurement organs. Some specialists of RAPO's [Rayon Agricultural Production Association], kolkhozes and sovkhozes and scientists from institutes deal poorly and sometimes aimlessly with the problems of increasing the yield of spike crops and of improving grain quality.

Often crops are sown following poor predecessors and are shortchanged in terms of fertilizer. A great loss to the harvest is brought about by weeds, pests and diseases. In Shcherbinskiy Rayon, for example, during the last 3 years the plan for the non-radical top-dressing of winter crops has not been fulfilled a single time. And now things are far from well in this regard.

In accordance with the requirements of the CPSU Central Committee the buro of the party kraykom has passed an extensive program to increase grain production for food purposes and to raise the quality of grain. Already today it is planned to supply the state with almost four times more strong wheat than during the past season. The task is a complicated one, but it can be fulfilled. All links in the agro-industrial complex are being recruited to meet this objective. Unfortunately, in the kray's northern zone--the storehouse for high-quality grain--winter crops have suffered from dust storms and a shortage of water. In trying not to tolerate a decrease in grain yield, a great deal of attention in the kray is being focused on the central and foothill zones, where the fields promise a weighty harvest. Almost 600,000 hectares of winter crops have been selected from which, according to specialists, it will be possible to produce good grain. A complex of agro-technical measures is being taken; there have been increased deliveries of mineral fertilizer and of means of plant protection.

A great deal has been done. But urgent problems remain. PRAVDA has written about some of them in the raid material of 30 July 1982 under the heading, "The Strength of Wheat Grain." Almost 2 years have passed, but no serious changes are in evidence. Some partners of the village did not draw the necessary conclusions from the criticism. Thus, procurers continue to play the role only of the receivers of products. The laboratory at the elevator has long been considered a "sore" point. It is a problem to receive a grain analysis, and without it unloading cannot proceed. Now 84 units have been

installed to wash off gluten, which has eased labor. But there is no point in feeling satisfied. The apparatus makes mistakes and it is not trusted.

"Yes, it seems to be that way, it isn't even regulated," said the deputy director of the kray administration of grain products, S. Kutishchev. "Recently we unloaded 6,000 tons of wheat. The equipment categorized it as strong wheat. In the central laboratory on the quality of agricultural products of the RSFSR Ministry of Procurement, where gluten is washed away manually, the quality category was reduced. We will have to pay a fine."

This type of "leap frog" brings considerable harm. The directors of elevators are introducing equipment timidly. They are counting on the manual method, although it takes 1.5-2 hours to process one sample. But it is more reliable. During harvesting operations on the threshing floors of kolkhozes and sovkhozes the results of analyses are awaited. Grain sometimes gets caught in the rain, loses its "strength" and it happens that instead of finding its way to elevators it ends up on the farm.

This is not the first time that there has been a discussion about the imperfections in methods to evaluate wheat. Its quality is determined by over 10 indicators. There are also flaws within the incentives system. For grain with a gluten content of 25-28 percent a premium of 10 percent of the cost is paid, 28-30 percent--30 percent of the cost and higher--bonuses increase by a factor of 1.5. In the opinion of village workers each quality percentage point is achieved by hard work and additional expenditures, and a more flexible system is needed.

We are concerned about the fate of the wheat that remains in the enterprises to meet their own needs. Without considering seed funds, this amounts to 1-1.5 million tons. Of course such grain does not meet the requirements established for strong and valuable wheats. However, its bread-baking qualities are very high. Is it reasonable to expend goods for the purpose of livestock feed? Undoubtedly the answer is no. It is important to utilize them for food purposes, allocating concentrates for livestock raising in exchange. The question is not an easy one. The mixed fodder industry is poorly developed in the Kuban'. Prices are not equivalent. An enterprise is paid 79 rubles for a ton of regular grain, but concentrates are sold for 41 rubles more. Several years ago there was an exchange system according to which 1.5 kilograms of some forms of mixed fodder were issued per kilogram of wheat. There are limitations which do not allow an enterprise to submit grain in exchange for forage prior to the fulfillment of the plan for grain deliveries. As a result the director is sometimes forced to transport wheat to farms already during the harvesting period.

As we see, the basic portion of unsolved problems is being directed to the USSR Ministry of Procurement and its local sub-departmental organizations. Let us note that this is not the first year in which this was done. At the present time an alarming situation has developed in the kray's grain reception enterprises. Many of them require repairs and renovations. In some places drying and sorting enterprises have a weak base. Under such conditions it

is difficult to preserve or even more--to improve the condition of grain being procured.

The kray's wheat fields are gaining strength from one day to the next. The time for harvesting is not beyond the hills, as they say. This year Kuban' farmers plan to supply the state with over 2 million tons of strong and valuable wheat; next year--with 2.7 million tons. Farmers and their partners have a great deal to do already today in order to keep their work and to produce a weighty harvest of grain with good bread-baking qualities.

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## LAND RECLAMATION AND WATER MANAGEMENT

### RESULTS OF LAND RECLAMATION WORK REVIEWED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 6, Jun 83 pp 100-104

[Article by R. Kuchukov, head of a sector at VNIITEISKh, candidate of economic sciences: "Increasing Effectiveness of Irrigated Land Utilization"]

[Text] The basic direction in developing contemporary agricultural production is its comprehensive intensification. As far as crop farming is concerned, this means a steady increase in the yield of agricultural crops on the basis of increasing the sophistication of farming, chemicalization, and extensive land reclamation. Reclamation leads to renewal of the land and an improvement in its quality and the effectiveness of each reclaimed hectare.

In the three five-year plans which have passed since the May 1966 Plenum of the CPSU Central Committee, the area of reclaimed agricultural land in the country doubled and in 1980 totaled 30 million hectares, of which 7.3 million were irrigated as compared to 10.9 million hectares in 1970. During these years about 75 billion rubles were invested in reclamation -- 8 times more than in the previous 15 years.

Because of the sum total of reclamation work which has been carried out, millions of hectares of low-productivity land have been converted into highly productive agricultural areas.

In 1980 more than 26,000 kolkhozes and sovkhoses had irrigated land, while 14,000 had drained land. Each farm had an average of 650 hectares of irrigated or 920 hectares of drained land. In 1980, 23 percent of the reclaimed land was used for grain crops, 14 percent for industrial crops, about 6 percent for potatoes, vegetables, and melons, 53 percent for feed crops, and 4 percent for perennial plantings.

As a result of the expansion of sown areas and the increase in yield of reclaimed lands, production of agricultural output has increased from year to year. In 1980 the grain harvest reached 16.6 million tons compared to 5 million tons in 1965, including 3 million tons of grain corn compared to 0.5 million tons; the amount of rice obtained was 2.8 million tons compared to 0.6 million, raw cotton -- 9.96 million tons against 5.7 million, vegetables -- 12.7 million tons compared to 5.6 million, and feed -- 42.6 million tons as compared to 8.2 million tons of feed units.



Farms now obtain the entire harvest of cotton and rice, 38 percent of the corn, more than 70 percent of the vegetables, 21 percent of the coarse and succulent fodder, and a large quantity of other output from reclaimed lands.

In 1980, using 10 percent of the area of arable land and perennial plantings, reclaimed land contributed 34 percent of the total gross output of farming to public production.

In a report at the May 1982 Plenum of the CPSU Central Committee, L.I. Brezhnev noted that "in the current decade the production of tractors, combines, and other machines for the countryside will increase and their qualitative features will improve. The amount of land under irrigation is to be brought up to 23-25 million hectares in 1990.

But these measures will give the necessary result only if we learn to use machines and fertilizers and everything that agriculture has and will have at its disposal much better."

The basic demand made on reclaimed lands is that they achieve the maximal yield from each hectare and full utilization of its productive force.

Many farms obtain high stable yields from irrigated and drained areas. Systems for programming the yield of various agricultural crops under cultivation on reclaimed lands are being introduced. Particular significance is attached to comprehensive improvement of the use of irrigated and drained lands and to a reduction in the time necessary to achieve the projected yield from them. In order to do this, the structure of plantings is being improved everywhere and reclaimed lands are being planted with high-yield crops. In those places where conditions are appropriate, secondary and afterharvest planting are practiced. As a rule, mineral fertilizers, necessary equipment, and other materials are allocated on a priority basis for irrigated and drained lands. Reconstruction of existing reclamation systems and improvement of the operating condition of irrigated and drained areas are being conducted at a rapid rate.

All of this made it possible to raise the yield on irrigated lands to 31.5 quintals of grain per hectare on the average during the 10th Five-Year Plan compared to 19.2 in the 8th Five-Year Plan. In 1980 the cotton yield for the country as a whole reached 31.7 quintals per hectare as opposed to 23.2 in 1965. For 1976-1980 as a whole, the productivity of irrigated lands was 5.8 times higher than unimproved land and of drained lands, 1.5 times higher.

Agricultural labor is more productive on reclaimed lands. For example, in the RSFSR in 1978-1980 crop farming output per man-hour was 2.44 rubles on all land and 4.65 on improved land; corresponding figures for the Ukraine were 2.4 and 3.75, while for Latvia they were 1.9 and 3.97 rubles.

Every year more and more technically improved reclamation systems are being put into operation in our country. These systems are creating the best conditions to obtain high yields from agricultural crops with the least expenditures of labor and resources for raising them as well as for operating the irrigating and drainage network. Closed irrigating systems are being

built in the irrigation zone, while on saline soils these systems are built with closed drainage. More than 38 percent of all irrigated lands are being watered using sprinkler machines. Technically improved reclamation systems are insuring the soil moisture content necessary for plants, are increasing the efficiency coefficient (KPD) and the land use coefficient (KZI), and are creating the necessary conditions for mechanizing field work and automating water consumption control. The KPD indicator which characterizes the amount of water loss is of paramount significance in evaluating water consumption, irrigation system activity, and the technical level of these systems. Building new engineering systems and using water more efficiently have assured an increase in the KPD of the interfarm network in recent years, especially in the zone of unreliable and uneven moisture, from 0.64 to 0.80.

A characteristic feature of the reclamation work being conducted at the present time is the creation of large regions for production of grain using irrigation. In connection with this, work is being conducted at a rapid rate to irrigate land in arid regions, primarily in the Volga Region, the steppe region of the Ukraine, the North Caucasus, and Kazakhstan. The Volga Region, the country's largest grain area and the supplier of the most valuable durum varieties of wheat, deservedly enjoys world fame. However, in the course of a decade severe drought causes the kolkhozes and sovkhoses an average loss equivalent to the gross harvest of two comparatively good years. Therefore one of the main conditions for increasing the grain harvest at Volga Region farms is irrigation.

As research by the Volga Scientific Research Institute of Irrigation Farming in Volgograd has shown, crop farming output from irrigated land in Kuybyshev, Saratov, and Volgograd oblasts averages, respectively, 6.7 times, 4.8 times, and 6.6 times higher than from unirrigated land. The cost of the gross output of farming on irrigated lands in these three oblasts averages 478-480 rubles per hectare of plowed field and 75 rubles per hectare of nonirrigated field (for 1976-1980). The increase in grain yield using irrigation averaged 17.4 quintals per hectare in Kuybyshev Oblast, 11.5 quintals in Saratov Oblast, and 18 quintals per hectare in Volgograd Oblast. The increase in grain productivity is accompanied by a reduction in its prime cost, despite increased production expenditures for irrigation.

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A necessary condition for the increased efficiency of irrigation farming is the creation of large specialized irrigated areas. Research by the Volga Scientific Research Institute of Hydraulic Engineering and Land Reclamation in Engels has shown that farms with an area of 294 hectares of irrigated land have the lowest gross crop farming output -- 288.5 rubles per hectare. By increasing the area of irrigated land to 361 hectares per farm, the gross output increases to 973.5 rubles per hectare. The highest gross output, 1,254.6 rubles per hectare, is observed in a group of sovkhoses and kolkhozes with the largest area of irrigated land, 699 hectares and more per farm.

The Meliorator Sovkhoz in Nikolayevskiy Rayon, Volgograd Oblast, is a typical Volga Region farm. It has 28,100 hectares of agricultural land, including 17,100 hectares of plowed fields of which 2,700 hectares are regularly irrigated. Since irrigated areas began to be put into operation, comprehensive mechanized links which work on a contract-bonus system of wages

have begun to be set up. Planting areas and equipment are assigned to the links. The link is tasked to obtain a planned output. For fulfilling plan indicators link members are paid an additional bonus, 25 percent of the tariff fund, while for overfulfilling the plan output, they are paid another 20 percent of its value according to purchase prices.

The largest proportion in the structure of planted areas is taken up by grain and leguminous crops -- 68 percent, while feed crops take up about 30 percent. In connection with expanding irrigated areas, to a great extent the production of feed has been moved to irrigated land; one-third of all feed crops are now concentrated on this land. Moving feed crops to irrigated land has made it possible to reduce the size of areas devoted to feed crops by 1,800 hectares and correspondingly expand plantings of grain crops while simultaneously sharply increasing the production of feed.

The productivity of agricultural crops on unirrigated land on this sovkhos remains low every year and is subject to sharp fluctuations, while it is continuously high on irrigated land. So, the productivity of grain crops on unirrigated land in the best rainfall year is only 8-10 quintals per hectare, while on irrigated land it is 35-40 quintals per hectare.

Results of cultivating silage corn and perennial grasses for hay are indicative in these conditions. The output of green mass from corn on irrigated land is 400-500 quintals per hectare, while in favorable years on unirrigated land it is 75-80 quintals and in drought years considerably less. The output of perennial grass hay on an irrigated hectare is 85-100 quintals.

More than one-half of all crop farming output is obtained from irrigated lands which make up 14 percent of the area of this farm, while in drought years an overwhelming proportion of the output is obtained from them.

The efficiency of producing agricultural crops using irrigation is increasing from year to year; the net profit from 1 hectare is already 142 rubles while on unirrigated land it is much less, and in certain years dry farming loses money.

The capabilities of an irrigated hectare may be judged by the experience of the Sovkhoz imeni Radishchev in Novouzenskiy Rayon, Saratov Oblast, which for the past 5 years has obtained the highest yields in the oblast from irrigated lands. It is a large farm which specializes in producing grain, meat, and milk. According to work results in recent years, they produce an average of 12 million rubles worth of output and make about a 6 million ruble profit. The sovkhos obtains the largest annual profit from crop farming output; this is made possible by highly sophisticated farming and proper utilization of irrigated lands, the main part of which were put into use during the years of the 9th and 10th Five-Year Plans. All the irrigated lands (an area totaling 2,893 hectares) are located in large blocks based on the divisions of the sovkhos. Areas on the farm planted with feed crops increased from 477 hectares in 1973 to 1,438 hectares in 1980, while the productivity of grasses increased on the average from 143 quintals per hectare to 457.

Since 1979 a great deal of attention has been devoted to improving the management and organization of labor. A complex for producing feed has been organized at the sovkhoz. The form of labor organization and payment which exists, in conjunction with progressive production technology, is helping meet the main challenge posed to the employees -- providing animal husbandry with valuable feed.

Wages in links are piece plus bonus with a final calculation for the yield obtained. During the year tractor driver-machine operators and irrigators are paid for the actual volume of work fulfilled according to norms and prices authorized by the farm. An additional payment for output is allotted proportional to each worker's wage. In addition, brigade and link collectives are paid a bonus for overfulfilling the plan at a rate of 10 percent of the value of above-plan output obtained.

A characteristic feature of reclamation work being conducted in the Ukraine is the broad-scale utilization of modern equipment and the availability of large installations that serve tens of thousands of hectares of land being reclaimed. There are 1.93 million hectares of irrigated land and 2.44 million hectares of drained lands in the republic.

Using progressive farming methods many farms obtain high and steady yields every year. For example, the Order of Lenin Kolkhoz imeni Kirov in Belozerskiy Rayon, Kherson Oblast, where 1,684 hectares or 30 percent of the planting area is irrigated, obtains the entire yield of vegetables, hay, and green mass from perennial grasses, 77 percent of the total production of feed root crops, 62 percent of silage corn and green feed, and 24 percent of the total production of grain from irrigated lands. The productivity of an irrigated hectare here is 3.2 times higher than an unirrigated one and amounts to 1,328 rubles according to the gross output value.

Solving the questions of improving the technology of cultivating agricultural crops using irrigation, the Sovkhoz imeni 60-letiya Sovetskoy Ukrainy in this same oblast continually achieves a high yield from each hectare of irrigated land. There the winter wheat yield is 68 quintals per hectare, corn -- 86, vegetables -- 246, feed root crops -- 1,027, and perennial grasses for hay -- 103 and for green feed -- more than 500 quintals per hectare.

Crimean Oblast sovkhozes are famous for corn production. Using irrigation they obtain 100-120 quintals of grain corn per hectare on large areas.

The rich experience of leaders is studied and introduced in other farms of the republic. For this purpose a network of experimental-demonstration sovkhozes has been created on irrigated lands: the Komsomol'skiy Sovkhoz in Kherson Oblast, the Pyatiozernyy Sovkhoz in the Crimean Oblast, and the Sovkhoz imeni Shevchenko in Nikolayevsk Oblast; and on drained lands: the Ratnovskiy Sovkhoz in Volyn Oblast and the Buchanskiy Sovkhoz in Kiev Oblast. Every year seminars are conducted to study and introduce into production progressive methods of incorporating and using these lands efficiently.

The main base for cultivating vegetables, potatoes, and feed, irrigated lands, is becoming increasingly important in producing grain. From 1968 through



1980 the gross grain yield from the republic's irrigated lands increased from 504,000 tons to 2,052,000 tons. Grain is planted on 33 percent of the irrigated area, while in a number of regions in the southern oblasts, the proportion of irrigated cropland planted in grain reaches 45-50 percent.

As research by the Ukraine Scientific Research Institute of Irrigation Farming in Kherson has shown, the average yield for 1971-1979 from experimental fields of irrigated lands was: for winter wheat -- 60.2 quintals per hectare, corn -- 91, and rice -- 62.3, while the maximums were 83.4, 130, and 90 quintals per hectare, respectively. The average yield of winter wheat in unirrigated conditions was 28.5 quintals per hectare and of corn -- 26.7 quintals per hectare. According to many years of study by this institute, increasing grain production helps increase the proportion of grain crops in crop rotation to 62.5 percent. And their productivity does not decline, while the winter wheat yield doubles. The following are significant reserves for increasing the yield of reclaimed lands: increased plantings of corn, whose productivity is higher than winter wheat by 30 quintals per hectare, on the average; introduction of new high-yield varieties of intensive type grain crops (Kherson-170, Kherson Jubilee, and other winter wheat) which have a potential productivity with irrigation of 80-90 quintals per hectare; and introduction of postharvest and postmowing planting. Millet and buckwheat planted on postharvest irrigated lands yield 25-28 quintals per hectare and 15-18 quintals per hectare, respectively. There is a great deal of data on second harvests of summer barley, wheat, peas, and early-maturing hybrids of corn.

By increasing the productivity and expanding the area of planting, the production volume of crop farming output on reclaimed lands and its proportion of total production in kolkhozes, sovkhozes, and other agricultural enterprises of the republic has increased significantly.

Effectively meeting the most important economic challenge to stabilize and insure a high level of agricultural production development, land reclamation in the Ukrainian SSR has been converted into a highly technically equipped sector of the national economy.

In Krasnodar Kray the area of irrigated land in 1980 totaled more than 440,000 hectares, which is 3.6 times higher than the 1966 level.

The leading crop of irrigation farming in the kray is rice. It is planted on up to 45 percent of the entire planting area, while the area of rice systems exceeds 53 percent of the technically prepared irrigated lands. Consequently, increasing use efficiency is very important.

One of the factors which determine the efficiency of rice planting is the level to which the proportion of rice in rice crop rotations has been increased. This level is 62.5 percent for the eight-field crop rotation recommended for this kray's conditions. With a rice yield of 50 quintals per hectare and the same level of saturation, the productivity per hectare of rice systems is equal to 31.2 quintals. The All-Union Rice Scientific Research Institute in the settlement of Belozernyy, Krasnodar Kray, in recent years has developed a system of intensive eight-field crop rotation with a rice saturation level of 75 percent, the incorporation of which requires a higher



level of intensification and organization of farm production and sophistication.

Along with increasing the area of irrigated lands, increasing the economic efficiency of its use related to the increased yield of agricultural crops is now becoming paramount.

At the kray's leading farms the productivity of basic agricultural crops is sufficiently high: rice -- 60-70 quintals per hectare; grain corn -- 80-90 quintals; silage corn -- up to 600 quintals; and green mass alfalfa -- 599 quintals per hectare.

Krasnoarmeyskiy Rayon in the kray is an example of highly efficient use of rice systems. On a 48,000 hectare area there, an average yield of 46.7 quintals per hectare was harvested during the 10th Five-Year Plan and on a 12,000 hectare area, an average of 290.3 quintals of green mass perennial grasses per hectare was raised. Certain farms (the Krasnoarmeyskiy Sovkhoz, the Kolkhoz imeni Michurin and the Kolkhoz imeni Rossiya) obtain 54-57 quintals of rice per hectare every year. By planting second crops, 200-250 quintals of a bulk green blend of winter wheat or rye and winter peas are raised per hectare there. After planting feed crops the soil is enriched by the organic substance of postmowing and root residues; the yield on these rice fields reaches 67-72 quintals per hectare, which is 8-11 quintals more than on rice fields without feed crop plantings.

Disseminating the know-how of Krasnoarmeyskiy Rayon and its leading farms is an important way to increase rice productivity in other rayons of the kray and country as well. In recent years the direction of the use of irrigated lands in the kray has been changing. In 1965 vegetables and potatoes were in first place after rice, but beginning in 1978 feed crops took over and grain and industrial crop plantings were increased.

Dagestan is a large irrigation farming region of the RSFSR. At the present time it has 288,000 hectares of irrigated land. This land, which forms 47 percent of the total arable land, yields 61 percent of the grain, 85 percent of the vegetables, 65 percent of the grapes, and 82 percent of the fruit.

The republic is continuously carrying out measures aimed at increasing the technical level of irrigation systems, introducing scientifically sound crop rotation, and ultimately, increasing the productivity of agricultural crops. As a result of reconstructing the Upper Khasavyurt irrigation system, introducing crop rotation, and improving farming practices of agricultural crops, the yield of grain crops from irrigated land increased by 2.7 times, of sunflowers by 2.8 times, and of vegetables by 36 times. The value of commodity output increased from 2.3 to 9.6 million rubles.

The economic expediency of creating irrigated crop pasture lands is graphically confirmed by the achievements of leading farms. For example, the Shamkhal'skiy Sovkhoz in Kizilyurtovskiy Rayon, Dagestan ASSR, obtained 7,185 feed units on each of 194 hectares and the prime cost of one feed unit did not exceed 2-2.3 kopecks. Leading farms obtain from 6,000 to 10,000 feed units from one hectare of irrigated pasture land, while the average yield for the

republic is 3,500 feed units. The further development of agricultural production in Dagestan is inseparably connected with the future development of irrigation there.

Every year many farms in Kabardino-Balkariya, Stavropol Kray, and other oblasts of the country are achieving good results from using irrigated lands.

In this way, leading kolkhozes and sovkhoses get 50-60 quintals of wheat, more than 70 of rice, more than 90-100 of grain corn, 400-500 of vegetables, and 110-140 quintals of perennial grass hay per hectare of irrigated land. At many farms reclaimed lands are planted with the most valuable and high-yield crops and are supplied with equipment and fertilizers first of all. The structure of planting areas is being improved; plantings of grain corn are being expanded; plantings of low-yield annual grasses are being reduced; and areas planted with perennial grasses are being expanded. On drained lands low-yield natural hay fields and pasture lands are plowed up in order to cultivate more productive crops.

By regulating the water balance of arid regions and creating an optimal soil moisture regime in association with other factors for intensifying farming, irrigation makes it possible to achieve high and steady yields of agricultural crops. By changing the physical and chemical features of the soil, land reclamation helps progressively increase its fertility and by the same token creates opportunities to expand the land fund in use.

Artificial irrigation creates conditions to involve in intensive agricultural use lands with high potential fertility which without reclamation could not be used at all or not extensively. Irrigation farming significantly increases labor intensity, in connection with which all-out comprehensive mechanization of hydroeconomic and agricultural work has particular significance for production efficiency. Increasing capital and production expenditures in agriculture, with rational use of irrigated lands and irrigation water, irrigation creates conditions for increasing production efficiency.

To a significant extent this efficiency is determined by the farm's specialization and the structure of agricultural crops. Under conditions of irrigation, farming specialization and optimal concentration of agricultural production, make it possible to consolidate irrigated sectors and mechanize their agriculture and water management more extensively.

Nonetheless, by no means all of the country's farms are using irrigated lands efficiently; in some of them enormous capital investments for land reclamation are being repaid slowly; the production of output from a reclaimed and a non-reclaimed hectare is sometimes almost equal, and so forth.

Many factors explain this situation. For example, when reclaimed lands are being incorporated all the measures envisioned by the technical draft are not always carried out. Means allocated by the state to be used for comprehensive construction and incorporation of reclaimed lands are frequently used for something other than the designated purpose. Low quality reclamation construction is tolerated and gaps occur between the development of the reclamation site itself and the introduction into use of agricultural

production buildings and housing and domestic facilities. The necessary schedule for irrigating agricultural crops and their cultivation practices are violated and less fertilizer than the norms call for is applied.

By creating conditions for two harvests a year and making productivity stable and independent of the whims of nature, land reclamation is a decisive factor in increasing the efficiency of agricultural production on irrigated and drained lands.

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